

# Construction



A Manufacturers Record Publication



**MARCH 1949**

South Is Scene of Much New Pipe Laid  
Construction — — — See Page 28

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*It's the*  
**111-M**  
**MARION**

**DIESEL POWER WITH ELECTRIC  
 SWING AND AIR CONTROL**

*It's what  
 it takes to  
 get big jobs  
 done quickly*



**IT'S FAST! IT'S POWERFUL! IT'S ECONOMICAL!**

Put this husky 3½-4 cubic yard machine to work on your toughest construction jobs. The MARION 111-M is setting production records across the country. It's a blend of speed,

power and economy that gets big jobs done quickly. Delivery dates?—earlier than you might think. Why not check your nearest MARION District office or agent today?

NEW — The MARION 111-M is now available as an all-electric machine with full Ward-Leonard Control.

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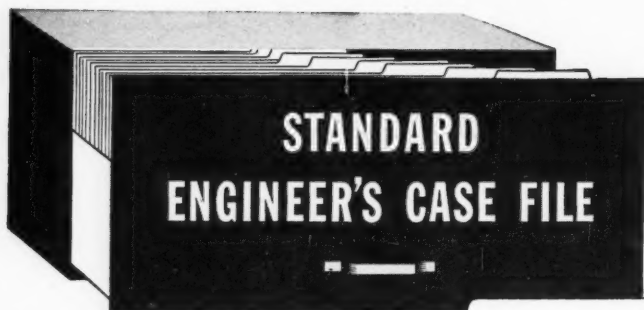
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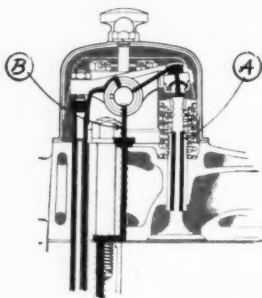
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#### CASE D119C--PROVIDING GOOD VALVE ACTION IN DIESEL ENGINES.



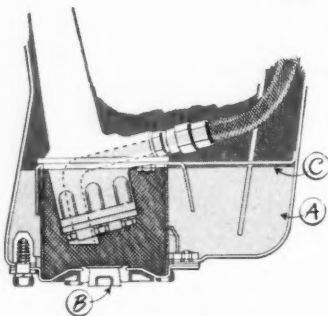
DIESEL ENGINE VALVE ASSEMBLY

When Diesel engines, operating in tough heavy-duty service, were lubricated with compounded RPM DELO Diesel Engine Lubricating Oil, valve stems and guides did not gum up. They received thorough lubrication at all times and wear was negligible. RPM DELO Oil is recommended for all types of Diesels. Comes in several viscosity grades to meet all conditions.

- A. Specially selected oxidation-resistant base stocks and special compounds prevent formation of gum and lacquer...oil film adheres to hot or cold metal surfaces.
- B. Detergent compound keeps oil passages clean and open...and allows free flow of adequate supply of lubricant to wear points.

RPM DELO Diesel Engine Lubricating Oil is non-corrosive to all bearing metals. This quality and high stability assure sound bearings in Diesels for long service periods.

#### CASE D119D--KEEPING PARTS CLEAN AND REMOVING CONTAMINANTS FROM DIESEL ENGINES.



DIESEL ENGINE CRANKCASE

Cylinder walls, pistons, bearings and other parts of Diesel engines in heavy-duty service remained free of lacquer, and all contaminants flowed out with drainings when RPM DELO Diesel Engine Lubricating Oil was used.

- A. A special compound in RPM DELO Oil loosens and removes lacquer and other deposits from parts and oil passages...and they stay harmlessly dispersed in the oil.
- B. The finely dispersed contaminants, including condensate and dust, flow out freely when crankcases are drained.
- C. Another compound in RPM DELO Oil prevents foaming—allows accurate measurement of oil levels and delivery of sufficient lubricant by oil pumps.

The engine-cleaning qualities of RPM DELO Oil help reduce wear on parts and prolong greatly the operating periods between engine overhauls.

Distributed by

## THE AUTOLINE OIL CO.

BALTIMORE, MD.

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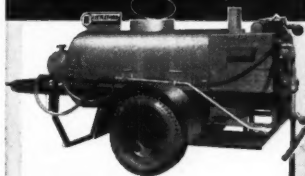
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MARCH, 1949

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## 101

### UTILITY SPRAY TANKS



*takes the place  
of three units*

FOR A UTILITY UNIT to do Road Maintenance work the Littleford No. 101 was designed to do just that. Here's an outfit that can do the work of three units—it has a spray bar for doing small application jobs, a hand spray attachment for doing patch work and a pouring pot outlet for doing patch work or crack filling. This 101 Unit has a fast heating system including U type heat flues with Littleford Vaporizing Torch Burners. The No. 101 will handle Asphalt, Tar, Emulsion, Road Oils or Cut-back. Made in sizes to fit any road maintenance job. For further details see your nearest Littleford distributor.



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# LITTLEFORD

LITTLEFORD BROS., INC.  
405 E. Pearl St., Cincinnati 2, Ohio

**Garrison Dam**, under construction on the Missouri River near Garrison, North Dakota, will be the world's largest rolled-fill earth dam. When completed, the dam will be 210 feet high and over 2 miles long with a base width of nearly half a mile—a total fill of more than 70,000,000 cu. yds.



# A load a

## WITH GM



Euclid Bottom Dump, powered by GM Series 71 Diesel, dropping a load of fill dirt. Eight of these units, working with a BV Loader, hauled 631 such loads in a 10½ hour working day, an average of one load a minute. Haulage distance at this stage was about 500 yards.

**O**N the world's largest rolled-fill earth dam near Garrison, North Dakota, records for moving dirt are being smashed every day.

Bulk of the heavy equipment on the Garrison Dam project is powered by General Motors Series 71 Diesel engines. GM Diesels were selected for this job because—as the contractor puts it—“They can move dirt faster.”

Reasons for this superior performance are obvious. GM Diesel engines are



**Garrison Builders, Inc.**, operators of this equipment, are working on the 14 million yard stage-one contract on the west side of the river. Shown is a convoy of four Euclid Bottom Dumps approaching the embankment fill area.

# minute...

## DIESEL POWER

2-cycle—with power on every piston downstroke. They deliver a smooth, steady power output—twice as many power impulses for each revolution of the crankshaft. This added power-per-turn makes them more compact with more horsepower for their size than other type engines. They start instantly on their own fuel. Their simplified construction and clean design make maintenance much

easier. Service problems are greatly simplified by the interchangeability of parts.

Add up these advantages and you'll see why General Motors Diesels are the first choice of construction men for any heavy-duty operation. Let us show you

how these engines can bring greater efficiency and economy to your particular job. See your local equipment distributor or write direct to us.



### DETROIT DIESEL ENGINE DIVISION

SINGLE ENGINES...Up to 200 H.P.

DETROIT 28, MICHIGAN

MULTIPLE UNITS...Up to 800 H.P.



Changing the channel of the Yakima River, near Ellensburg, Wash., this "Caterpillar" Diesel D7, with No. 75 Bulldozer, works in 3 feet of water, doing a difficult job with ease.



On a highway job near Hampshire, Tenn., this "Caterpillar" Diesel D8 Tractor with No. 85 Bulldozer operated at 11¢ per yard lower maintenance cost than a competitive tractor.



A "Caterpillar" Diesel D7 and No. 75 Bulldozer clearing rocky land for a citrus grove, Santa Paula, Calif. Operator says: "This is the neatest operating 'dozer I've ever worked with."



A "Caterpillar" Diesel D6 Tractor with No. 6A angling-type Bulldozer, is shown here building dike for a big new irrigation system in the Rio Grande Valley near Eagle Pass, Texas.

# Top-Dog in the

Three years ago the "Caterpillar" Bulldozer entered the earthmoving picture. Since then thousands of contractors have used it on their jobs—proved its toughness—checked its big yardage and low operating costs. From coast to coast they talk about its ease of adjustment, its freedom from overhead structures, and the excellent rolling action that's built into the blade. Today, more than ever, this rugged unit is hailed everywhere as Boss of the Bulldozers.

Designed and engineered as perfect teammates for the power of "Caterpillar" Diesel Tractors, "Caterpillar" Bulldozers are now available in a complete line of both cable-controlled and hydraulic-controlled units. See your "Caterpillar" dealer for full particulars. He can also supply you with information on how these revolutionary 'dozers can be used with tractors of other makes.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

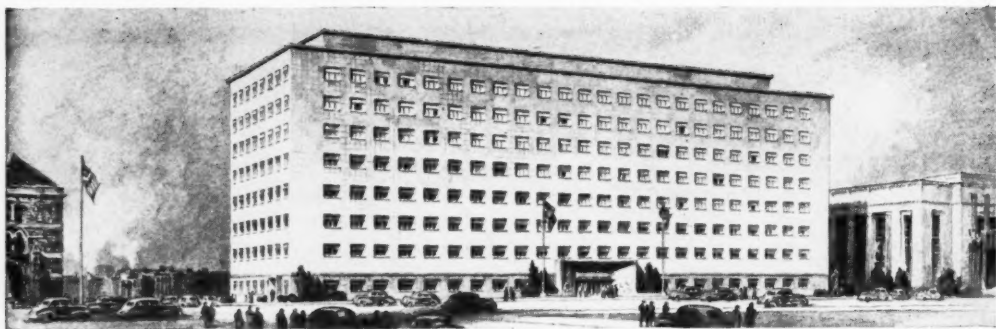




# 'Dozer field

This "Caterpillar" Diesel D8 Tractor with No. 85 Bulldozer handles 6000 to 8000 tons of sand and gravel daily at the Henry J. Kaiser plant, Pleasanton, Calif. Supt. B. F. Carter says: "Caterpillar" equipment stands up better and does a better job. Wouldn't have anything else."

**CATERPILLAR**  
REG. U. S. PAT. OFF.  
**DIESEL**  
**ENGINES • TRACTORS**  
**MOTOR GRADERS**  
**EARTHMOVING EQUIPMENT**



Above—Bids are being opened for the \$5,575,000 federal court and office building at Nashville, Tenn., perspective shown above. Eight stories and basement, the structure will have a concrete frame with flat floor slabs. Its exterior will be faced with polished granite at the first floor, with limestone above. It will contain 197,000 square feet of working area. Parking will be provided for 100 cars.

## South's Two-Month Award Value at High Point

**S**OUTHERN construction in the first two months of 1949 was valued at \$452,923,000, the highest two-month total in more than a half decade and fourteen per cent above the \$394,660,000 for the comparable period of last year.

The figures include the \$259,542,000 for January, which was an all-time peak for the first month, and \$193,381,000 for February, the latter representing a

twelve per cent decline from the total for the same month of last year.

Industrial construction, private building and highway and bridge work all showed increases when compared with the first two months of last year, while heavy engineering and public building were both below the level of that period.

With its total of \$71,439,000, industrial construction so far this year is up fifty-

eight per cent. The rise in private work is twenty-nine per cent and in highway and bridge construction, thirteen per cent. Heavy engineering is down thirteen per cent; public building, five per cent.

### Private Building Large

Private building in the two-month period amounted to \$134,984,000. Largest component of the value of all southern construction, the private building figure embraces \$80,766,000 for residential work, \$20,613,000 for commercial projects, \$18,558,000 for assembly buildings such as churches and theatres and \$15,047,000 for office type structures.

Second strongest total was the \$117,731,000 for public building. Government buildings and hospitals contributed \$60,311,000 to that figure, with the \$57,420,000 for schools representing the balance. Highways and bridges aggregated \$72,926,000; engineering construction, \$55,843,000.

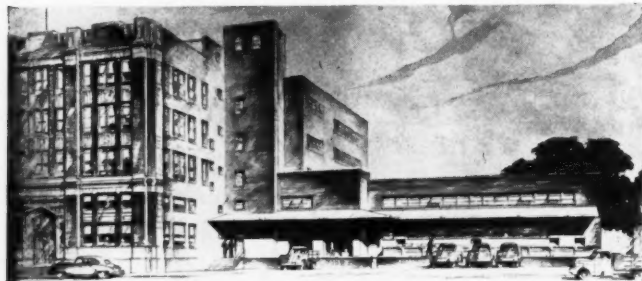
The February total is on the descending slope of a construction peak starting last October at \$225,308,000 and culminating in December's \$325,637,000, the record month of 1948. Both of 1949's elapsed months have been below that high level.

### SOUTH'S CONSTRUCTION BY STATES

	February, 1949 Contracts Awarded	February, 1949 Contracts to be Awarded	Contracts Awarded First Two Months 1949	Contracts Awarded First Two Months 1948
Alabama .....	\$5,945,000	\$75,183,000	\$11,700,000	\$17,463,000
Arkansas .....	1,788,000	6,005,000	4,961,000	10,879,000
District of Columbia .....	23,091,000	5,793,000	28,269,000	9,875,000
Florida .....	22,118,000	15,395,000	44,444,000	36,477,000
Georgia .....	5,740,000	28,900,000	21,005,000	14,364,000
Kentucky .....	2,632,000	9,855,000	5,936,000	10,661,000
Louisiana .....	16,084,000	\$7,165,000	31,088,000	47,582,000
Maryland .....	12,681,000	44,515,000	26,382,000	25,007,000
Mississippi .....	4,756,000	10,363,000	12,165,000	14,930,000
Missouri .....	3,480,000	19,965,000	11,981,000	14,154,000
North Carolina .....	8,789,000	8,087,000	41,962,000	18,486,000
Oklahoma .....	6,297,000	14,571,000	24,346,000	18,645,000
South Carolina .....	2,450,000	2,550,000	11,813,000	9,097,000
Tennessee .....	6,929,000	19,554,000	23,402,000	6,050,000
Texas .....	39,277,000	140,062,000	139,618,000	106,862,000
Virginia .....	7,129,000	8,680,000	15,044,000	9,929,000
West Virginia .....	2,306,000	11,995,000	2,685,000	18,971,000
<b>TOTAL .....</b>	<b>\$193,381,000</b>	<b>\$456,978,000</b>	<b>\$452,923,000</b>	<b>\$394,660,000</b>

### \$193,381,000 in February

Below—The Birmingham Age-Herald has announced a \$2,000,000 expansion program, including an 80 by 127-foot annex to its present 4-story building. Warren, Knight & Davis are the architects; Daniel Construction Co., the contractors. Ten new press units will be installed.



February's \$193,381,000 embraced \$65,377,000 for public building, \$60,301,000 for private building, \$22,905,000 for highways and bridges, \$22,830,000 for engineering construction and \$21,968,000 for industrial work.

Two of the five construction categories—public and private building—accounted for sixty-five per cent of the entire total, the first-named representing thirty-four per cent and the second-named, thirty-one per cent. Highways and bridges and engineering each approximated twelve per cent; industrial construction, the remaining eleven per cent.

Public building alone registered an increase when compared with January. The figure, which included \$44,043,000 for government and hospital structures and \$21,334,000 for schools, was up almost

twenty per cent. It was also seven per cent higher than the level of public building in February of 1948.

Private building in February, although showing a drop of seven per cent from the previous month, was thirty-two per cent ahead of such work in the comparable month of last year. Current private building includes \$43,479,000 for residential, \$8,450,000 for assembly, \$5,100,000 for commercial and \$3,272,000 for office building.

#### Industrial Building Forecast

What is in store for a segment of the South—in the industrial field, at least—was forecast by the district manager of one of the country's large engineering organizations. C. W. Roberts, head of H. K. Ferguson Company's Houston office, expects industrial construction in the Southwest in 1949 to equal the high level of 1948.

The reason advanced for Mr. Roberts' prediction was "the natural flow of industries to the Gulf Coast area," which he described as "potentially the future chemical center of the world" because its "combination of raw materials, low power and fuel costs and excellent rail and water transportation invite location" there.

"Wage increases already granted or in the making," he said, will increase construction costs in the Southwest, but the increase "will be offset somewhat by better labor productivity and improved materials." The leveling off or decline of public and private housing construction, in his opinion, "should make more labor and materials available for industrial projects."

#### Construction Labor Costs

An idea of the present level of construction labor costs at the top fringe of the South was given by the Bureau of Labor Statistics, which revealed that union wage scales for workers in seven key building trades in Baltimore increased 24.9 per cent during 1948, while rates in neighboring Washington advanced only fourteen per cent.

Construction costs are stabilizing, according to the Associated General Contractors of America, and the tendency is toward a slight decline. A survey conducted by that national contractors' organization indicated a high volume of construction in 1949, a relative plentiful supply of materials and construction machinery, steel and in some areas cement, and an amelioration of the critical shortages of skilled workmen in recent years.

Publicly financed construction, according to the Commerce Department report, totaled \$283,000,000, or nine per cent less than the December figure, but thirty-five per cent more than January a year ago. A small gain was registered in the field of new construction for miscellaneous public service enterprises.

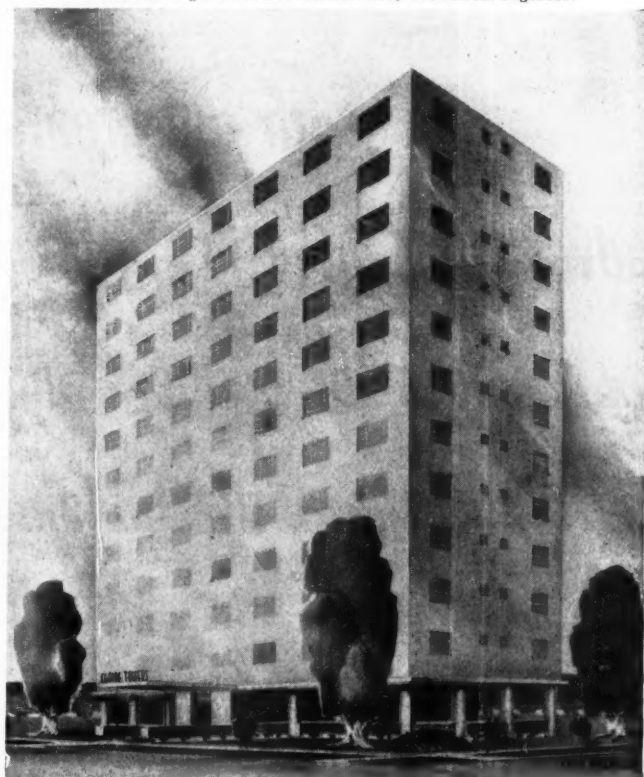
Rising construction costs have increased the difficulty of extending rural electric lines in sparsely populated or areas of rugged terrain, it is announced by the Rural Electrification Administra-

(Continued on page 60)

## SOUTH'S CONSTRUCTION BY TYPES

	February, 1949	Contracts Awarded First Two Months 1949	Contracts Awarded First Two Months 1948
	Contracts Awarded	Contracts to be Awarded	
<b>PRIVATE BUILDING</b>			
Assembly (Churches, Theatres, Auditoriums, Fraternal) .....	\$2,450,000	\$17,840,000	\$18,508,000
Commercial (Stores, Restaurants, Filling Stations, Garages) .....	5,100,000	5,732,000	29,613,000
Residential (Apartments, Hotels, Dwellings) .....	43,479,000	72,568,000	86,748,000
Office .....	3,272,000	2,865,000	10,047,000
	\$60,301,000	\$99,015,000	\$134,916,000
<b>INDUSTRIAL</b>	\$21,968,000	\$132,547,000	\$71,439,000
<b>PUBLIC BUILDING</b>			
City, County, State, Federal, and Hospitals .....	\$44,045,000	\$36,851,000	\$80,311,000
Schools .....	21,334,000	70,370,000	57,420,000
	\$65,379,000	\$107,220,000	\$117,731,000
<b>ENGINEERING</b>			
Dams, Drainage, Earthwork, Airports .....	\$10,363,000	\$24,361,000	\$26,299,000
Federal, County, Municipal, Electric .....	2,800,000	21,197,000	9,383,000
Sewers and Waterworks .....	9,666,000	13,228,000	20,561,000
	\$22,829,000	\$58,786,000	\$55,943,000
<b>ROADS, STREETS AND BRIDGES</b>	\$72,906,000	\$20,400,000	\$72,906,000
<b>TOTAL</b>	\$199,381,000	\$415,978,000	\$452,923,000

Below—The 12-story Claire Tower apartment building at Columbia, S. C., will cost around \$1,000,000 and will contain 11 floors of apartments and one floor of commercial space and lobby. Construction will be reinforced concrete with concrete slab floors. Outside walls will be 4 inches of brick backed with 8 inches of structural tile. Interior partitions will be gypsum block or structural clay tile. Windows, door frames and interior base will be metal. Radiant type heating will be installed. William G. Lyles and Bissett, Carlisle & Wolf are the architects; M. B. Kahn Construction Co., Columbia, the contractor. Design and supervision of construction is being handled by the architects with the assistance of R. C. Johnson and Julian Shand, structural engineers; Gerald Preacher, electrical engineer and M. R. Durlach, mechanical engineer.



---

**WATCH CELOTEX IN '49...**

# **CELOTEX IS ON THE MARCH**

*with the greatest  
advertising drive in its history to increase  
business for builders and contractors  
and the entire building industry*



**1949** bids fair to be the year of decision for the building industry. Everyone knows there is a big job to be done if the high level of building activity is to be sustained and advanced.

*Celotex has made its decision!* As our contribution to the cause, we are going all out in '49 with the greatest advertising and sales promotion campaign in Celotex history.

*And you, Mr. Builder, are one of the key figures in the whole program.*

In a series of smashing 2-PAGE SPREADS that will appear in THE SATURDAY EVENING POST, BETTER HOMES AND GARDENS, SUCCESSFUL FARMING, PROGRESSIVE FARMER, and other leading magazines—

Celotex will tell millions of Americans that *they not only can but should build or remodel now!*

This compelling advertising is designed to stimulate building activity and directly benefit builders, contractors, and everyone else who is a part of the great building industry.

Yes, Celotex is on the march in full force in 1949. We feel certain that you, the builders and contractors of America, will join with us—and that together, we will forge ahead to a new level of achievement and prosperity for the building industry, and ourselves!

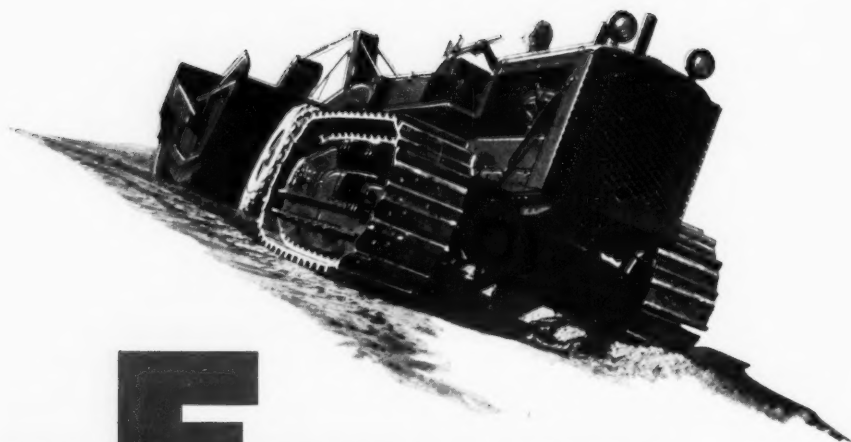
The Celotex Corporation, Chicago 3, Illinois

**Build Strong for the Future . . . Build with**

**CELOTEX**  
REG. U.S. PAT. OFF.

**BUILDING MATERIALS**

INSULATING BUILDING BOARDS • ASPHALT COATED INSULATING SHEATHING • INSULATING LATH  
INSULATING INTERIOR FINISHES • ROCK WOOL INSULATION PRODUCTS • TRIPLE-SEAL ROOFING  
GYPSUM WALLBOARD • GYPSUM LATH, PLASTER • CEMESTO • INSULATING SIDINGS  
ACOUSTI-CELOTEX • FLEXCELL EXPANSION JOINTS • HARD BOARD



# THE **E**NGINE THAT MOVES THE EARTH

When you buy earthmoving power, you buy the tools of the construction trade — crawler or wheel tractors, motor graders, draglines and shovels. The one common denominator of all is the engine. It gives get up and go to the equipment. It is the power that moves the earth.

When you buy and use earthmoving equipment, you buy and use the power of engines to work for you!

When you specify **INTERNATIONAL Power**, you can be sure of getting your full money's worth of power and performance. Diesel—or gasoline—International Engines are designed to give you dependable and efficient power. And they're built to the most exacting standards of the industry.

International full-Diesels give you features not found in any other Diesel. They

provide in-built, gasoline-conversion starting which gets International Diesels warmed up and on the job instantly. The International designed and built fuel injection system gives you unusually high combustion efficiency and excellent fuel economy. Rifle-drilled oil-pressure passages assure adequate lubrication for all working parts.

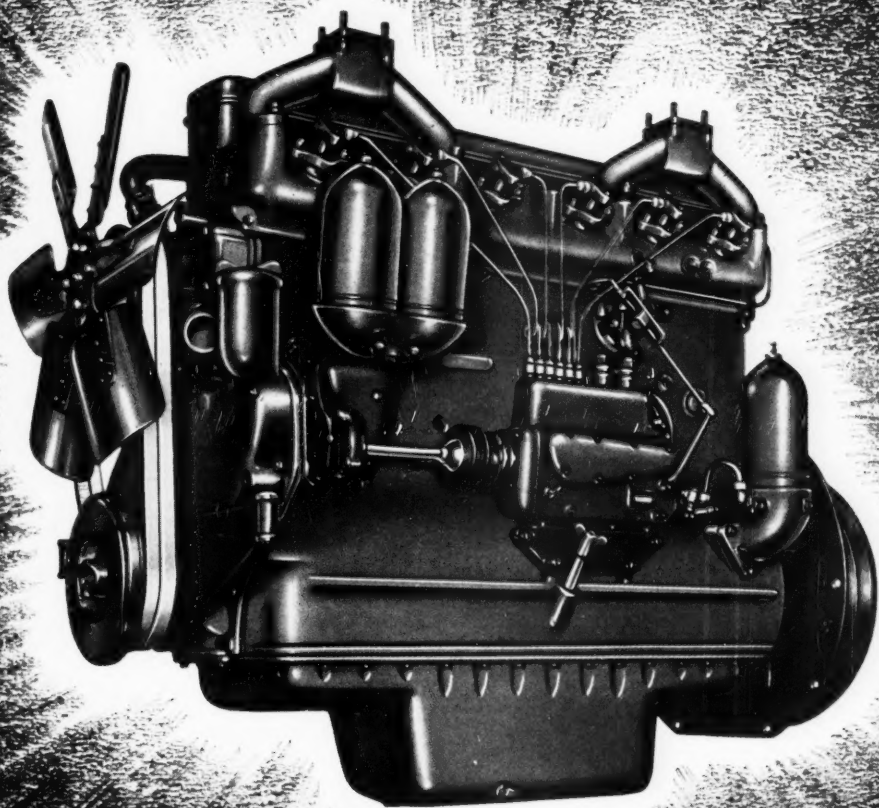
See your International Industrial Power Distributor for the facts about these features. Remember, he is equipped to give you superb service on all International-powered equipment which he sells . . . another reason why your best buy in earthmoving power is International.

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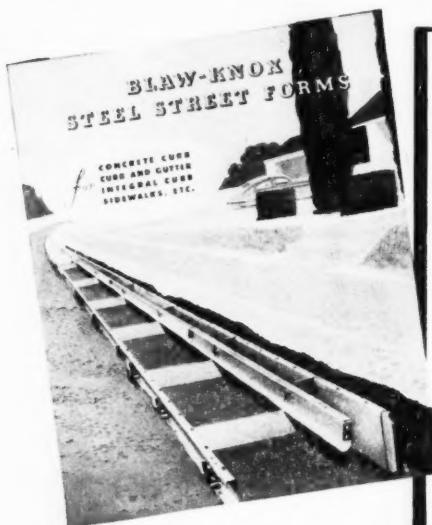


# TWO EASY STEPS

*for solving your* **CURB...SIDEWALK  
CURB AND GUTTER  
PROBLEMS**

## THE FIRST STEP

Send for your copy of the new Blaw-Knox Bulletin, No. 2259, for complete information on how Blaw-Knox Steel Forms can speed completion of your curb and gutter work, make each job better and more profitable. 24 pages of detailed illustrations show form set-ups for every type of work with complete instructions on how to use them. From this complete, up-to-date Steel Form Bulletin select the design that will meet all your requirements, make more money for you on every job.

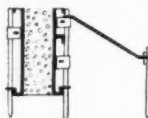
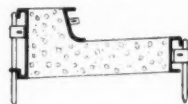


## THE SECOND STEP

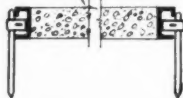
Use Blaw-Knox Steel Forms to insure greater profit on your next job, and on all your future concrete curb, curb and gutter, integral curb, and sidewalk jobs. They are easy to set, easy to strip, easy to handle and transport. They eliminate the building of expensive wood forms—especially on curves—and reduce expensive hand finishing and labor costs. Start using the Blaw-Knox Steel Form System now—it's the most complete and modern system available.

Here are just a few of the Blaw-Knox form designs available for any job!

**CURB AND GUTTER FORMS.** For concrete curb and gutter when curb is battered and has radius at bottom.

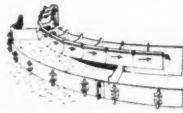


**STRAIGHT CURB FORMS.** For curb with both faces vertical. Auxiliary bracing system for lateral stability.



**SIDEWALK FORMS.** Furnished for any required width or thickness of sidewalk.

**FLEXIBLE STEEL RADIUS FORMS.** For curved work of variable radius. Back forms, gutter forms and battered curb face form can be set to any desired radius.



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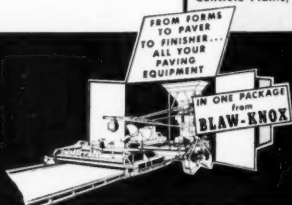
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# Southern Construction Projects

## ENGINEERING Proposed Stage

### LOUISIANA

**ALEXANDRIA**—Rapides Parish Police Jury has proposal submitted by State Senator C. H. Downs to use water from Camp Livingston in a \$1,000,000 distribution system.

**DONALDSONVILLE**—Ascension Parish Police Jury, A. C. Simoneaux, Pres., will hold election March 22 on \$205,000 bond issue to defray part of expenses for parish-wide drainage program.

### OKLAHOMA

**FAIRVIEW**—City plans water and sewer system improvements, \$178,000.

### TEXAS

**BEAUMONT**—Texas & Louisiana Intracoastal Canal Assn., John Fulbright, Pres., will appear before Congressional Committee to seek funds for port improvements to waterways including approximately \$1,500,000 for drainage and approximately \$6,000,000 for dam B of Motie Bend project.

**CROSBY**—City plans new water works and sewer system improvements, \$250,000.

**EAST BERNARD**—City plans water and sewerage system improvements, \$175,000.

**FORT WORTH**—City approved \$18,000,000 bond issue for water improvements, sewer treatment, sanitary sewer lines, low lift pump station at Holly Plant.

**GALENA PARK**—City plans \$250,000 bond issue for water and sewer system improvements.

**GALVESTON**—County Judge, Theodore R. Robinson, announced a 3-mi. westward extension of seawall, \$8,500,000.

**HOUSTON**—City plans sludge disposal plant, \$1,200,000.

**HOUSTON**—City has plans complete and will release for bids upon approval of Civil Aeronautics Administration for construction of Section No. 2 of Houston Municipal Airport Improvement Project; work in part of an \$8,000,000 airport improvement project.

**HOUSTON**—Harris County Navigation District has under construction a new 550-ft. wharf with 3 apron tracks to cost \$2,000,000.

**JASPER**—City plans water and sewer plants, \$400,000.

**SULPHUR SPRINGS**—City plans waterworks improvements, includes water storage tower, cast iron lines, water storage lake; earth and concrete, \$175,000.

## Contract Stage FLORIDA

**MIAMI**—Board of County Commissioners, Dade County, Courthouse, Miami, received low bid from Joseph Reinertson, 2927 NW 7th Ave., Miami, for storm sewers, pumping station and appurtenances, International Airport, \$208,776.

### GEORGIA

Corps of Engineers, Savannah, let contract to Cherokee Timber Corp., Washington, for clearing of Parcel No. 1, 1440.207, and L. H. Simpkins, Augusta, for clearing Parcel No. 2 for clearing of reservoir Group I-A, \$519,000.

**COLUMBUS**—Commissioners of Roads and Revenues of Muscogee County let contract to Jordan Contracting Co., Columbus, for administration building, Muscogee County Airport, \$390,833.

### KENTUCKY

**CORBIN**—City Utilities Commission, City Hall Bldg., Corbin, let contracts for water supply improvements; Contract No. 1, H. M. Dunn, Corbin, \$170,239; Contract No. 2, Bush Building Co., Nashville, Tenn., \$375,110; Contract No. 3, Bush Building Co., Nashville, Tenn., \$431,630.

**GLASGOW**—City received low bid from G. E. Moore Co., Greenwood, S. C., \$167,837, for sanitary sewers; Bush Building Co., 805 8th Ave., Nashville, Tenn., \$60,484, for outfall sewers; Frye Engineering Co., Cynthia, \$197,000, for sewage disposal works.

**RICHMOND**—City approved \$100,000 bond issue to Altmsted Brothers & Associates for sewer improvements.

### LOUISIANA

Corps of Engineers, Mobile, Ala., let contract to Maxon Construction Co., Inc., 131 N. Ludlow St., Dayton, Ohio, for Lock No. — on

Pearl River between Bogalusa and Pearl River, \$1,335,566.

**MANSFIELD**—City let contract to Koller Construction Co., Tradersmen's National Bank Bldg., Oklahoma City, Okla., for installing sewer extensions and constructing an outfall line and sewage disposal plant, \$225,231.

**NATCHITOCHES**—City received low bid from Barnett Brezner, 2833 Lee St., Alexandria, for pumping station and concrete storage reservoir and other improvements for the municipal water department, \$190,000.

**THIBODAUX**—Police Jury of Lafourche Parish let contract to Halpin, Albright & Peltier, Inc., for drainage canals, \$403,489.

### MARYLAND

**BALTIMORE**—Board of Estimates let contract to Frank Angelozzi Construction Co., 123 S. High St., for Liberty Road Montebello Tunnel, \$355,945.

**BALTIMORE**—Board of Estimates let contract at \$174,648 to Dravo Corp., 100 N. Eutaw St., Baltimore, and Neville Island, Pittsburgh, Pa., for mechanical and electrical equipment at the Brooklyn Sewerage Pumping Station, Hanover St. near Chesapeake Ave.

**BALTIMORE**—Corps of Engineers, Washington District, Washington, D. C., received low bid from Mueller Construction Co., Mago Vista Road, Arnold, Md., at \$170,885, for National Guard Aircraft Parking Apron, Baltimore National Airport.

**OAKLAND**—Corps of Engineers, Washington, D. C., received low bid from Hunkin Cuskey Construction Co., Cleveland, Ohio, and Shockner, Gordon & Hinman, Bialsville, Pa., for excavation and embankment of Savage River Dam; involves approx. 1,000,000 cu. yds. in Garrett County; \$862,727.

### MICHIGAN

**KANSAS CITY**—City sold \$453,000 bond issue for sewer improvements.

### NORTH CAROLINA

**SHELBY**—City received low bid from Glenn Construction Co., Charlotte, for changes and additions to raw water supply system, \$193,400.

**WILMINGTON**—Corps of Engineers let contract to Standard Dredging Co. for dredging Cape Fear River, \$209,285.

### OKLAHOMA

**ENID**—City received low bid from D. C. Bass & Son, Bass Bldg., Enid, for one 6,000,000 gallon storage reservoir, \$216,844; for two 6,000,000 gallon storage reservoirs, \$453,688.

**GORE**—Corps of Engineers, Tulsa, let contract to W. K. Mellyar, 8505 Douglas Ave., Dallas, Tex., for spillway and outlet works, Penikese Ferry Dam, Illinois River, Sequoyan County, \$3,507,623.

### TENNESSEE

**NASHVILLE**—City Director of Waterworks Department received low bid from W. F. Holt & Sons, 1531 Dembren, Nashville, for three million gallon concrete reservoir, \$205,000.

### TEXAS

**CHILDRESS**—City received low bid from J. W. Roberson, Springtown, for water supply improvements, \$218,911.

**COLORADO CITY**—Texas Electric Service Co., Fort Worth, received low bid from Wallace and Bowden and Shilling Construction Co., 5313 E. Grand Ave., Dallas, for dam on Morgan Creek in Mitchell County, \$465,800.

**CORPUS CHRISTI**—City let contract to Slovak Brothers, 3409 Agnes St., Corpus Christi, for monolithic reinforced concrete box sewer on Louisiana Ave. from Ocean Drive to Alameda St., \$229,683.

**CORPUS CHRISTI**—City let contract to Chicago Bridge & Iron Co., Houston, for furnishing and installing two 1,000,000-gallon elevated tanks and towers for overhead water storage, tanks to be located in South Park of Town, \$357,300.

**HOUSTON**—City received low bid from I. G. Addison, 1011 North Loop West, Houston, for station at Evilla and Staples Sts., \$295,984.

**LUBBOCK**—City let contract to Cullum and Hodgson, 1114 Texas Ave., Lubbock, for sewage treatment plant addition, \$163,261.

**SAN BENITO**—International Boundary & Water Commission, Cameron County Bldg., received low bid from Dodds & Wedegartner, 382 N. Bowie St., for levee and river bank reclamation, Rio Grande Bank Protection Project, \$129,701.

**TEXARKANA**—City received low bid from Shaw Construction Co., Texarkana, for sewage disposal plant and outfall lines for two cities of Texarkana jointly, \$419,010.

### VIRGINIA

**HENRICO COUNTY**—City let contract to Atlantic Bitulithic Co., Washington, D. C., for grading, concrete work and bituminous surfacing around Administration Bldg., Byrd Airport, \$208,903.

**NORFOLK**—Public Works Office, Navy Department, received low bid from F. J. Gannaway, 7400 North Shore Road, Norfolk, at \$158,550, for repairs to east bulkhead, Chambers Field, Naval Air Station.

## HIGHWAYS, BRIDGES

### ALABAMA

**DOUBLE SPRINGS**—Public Roads Administration, Federal Works Agency, H. J. Spelman, Div. Engr., Arlington, Va., let contract to Moss-Thornton, 1009½ 2nd Avenue S., Birmingham, \$130,442, for Alabama Forest Highway Proj. 10-B, Part I, William B. Bankhead National Forest.

**MONTGOMERY**—State Highway Department let contract for products in following counties:

**Calhoun and Cherokee**—\$-110(3), Moss-Thornton Co., Jasper, on F-100 (Forest Highway), \$278,352; Goodwyn & Murphree, Troy, Proposal "B," \$51,487.

### FLORIDA

**TALLAHASSEE**—State Road Department let contract to A. F. Rich Construction Co. for 5 paved roads in Leon County; \$303,389.

### KENTUCKY

**FRANKFORT**—Department of Highways, let contracts for projects in following counties:

**Breckinridge**—Union Star-Stephensport road, steel superstructure and concrete flooring for bridge at Stephensport; Nashville Bridge Co., Shelby Avenue, Nashville, Tenn., \$158,975.

**Metcalf**—Cave City—Sulphur Well Rd., bridge and approaches at Sulphur Well, 0.350 mi.; Ruby Construction Co., Madisonville, \$105,717.

**Christian and Hopkins**—surfacing of 3.647 mi. on Hopkinsville-Dawson Springs road, widening bridge over Tradewater river near Dawson Springs; Harry O. Wyse, Lexington, \$249,475.

**Mason**—Maysville-Brooksville Rd., beginning at Moraburg, 2.061 mi. grade, drain and traffic bound surfacing; George H. Cheek Construction Co., Frankfort, \$132,064.

### LOUISIANA

**BATON ROUGE**—Department of Highways let contracts for projects in following parishes:

**St. Martin and St. Landry**—Surfacing of 7 mi. of Cecilia-Arnauldville Hwy.; Roy M. Lilly, \$28,851.

**Lafayette**—Surfacing of 6 mi. of Milton-Youngville Hwy.; Henry and Hall, Dubach, \$168,449.

**BATON ROUGE**—Department of Highways received low bids for projects in following parishes:

**Evangeline**—State Proj. No. 66-06-07, Oakdale-Vidrine Hwy., State Rt. No. 22; 10.32 mi. of grading, drain, struc., rein. con. deck girder bridges, aggregate type base course, bit. surf. treatment; T. L. James & Co., Inc., Ruston, \$293,319.

**Assumption and Ascension**—State Proj. No. 407-08-03 and 407-09-03, Painscourtville-Donaldsonville Hwy., State Rt. No. 77; 9.551 mi. of grading, drain, struc., gravel base course; Barber Brothers Co., Box 629, Baton Rouge, \$286,157.

**Caddo**—State Proj. No. 48-03-03, Longwood-Mooringsport Hwy., State Rt. No. 994; 8.7 mi. of shaping roadway, small drain, struc., gravel base course; T. L. James & Co., Inc., Ruston, \$167,593.

**Tangipahoa**—State Proj. No. 263-04-05, Kentwood-Washington Parish Line Hwy., State Rt. No. 71; 8.43 mi. of shaping roadway, drain, struc., aggregate type base course, timber trestle bridge repairs; Barber Brothers Co., Box 629, Baton Rouge, \$165,450.

**St. James**—State Proj. No. 256-04-06 and 256-05-07, Remy-Ascension Parish Line Hwy., State Rt. No. 1; 17.4 mi. aggregate type base course; LeBlanc Brothers, 702 Louisiana National Bank Bldg., Baton Rouge, \$22,990.

**St. Mary**—State Proj. No. 243-02-10, North Bend-Bayou Sale Hwy., State Rt. No. 60; 5.45 mi. shaping roadway, small drain, struc., gravel base course 20-foot bit. surf. treatment; Ste-

(Continued on page 47)

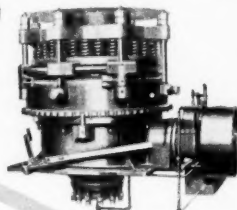
# TELSMITH GRAVEL PLANT and QUARRY Equipment



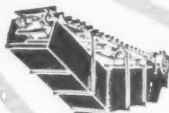
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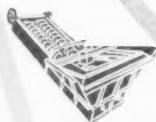
SAND TANKS



GYRASPHERE CRUSHERS



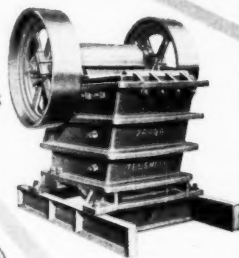
SAND DRAGS



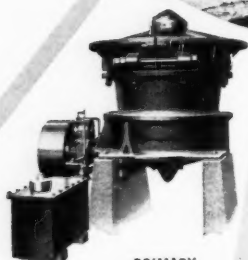
SAND CLASSIFIERS



BELT AND BUCKET ELEVATORS



JAW CRUSHERS



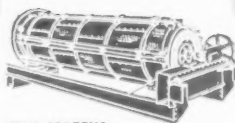
PRIMARY BREAKERS



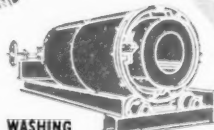
GRIZZLIES



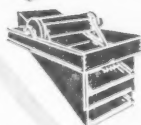
HEAVY DUTY FEEDERS



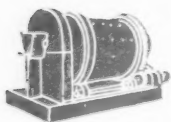
DRY SCREENS



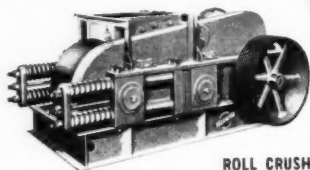
WASHING SCREENS



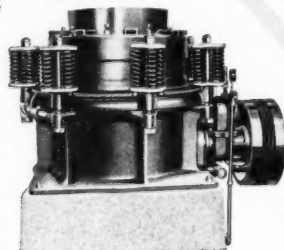
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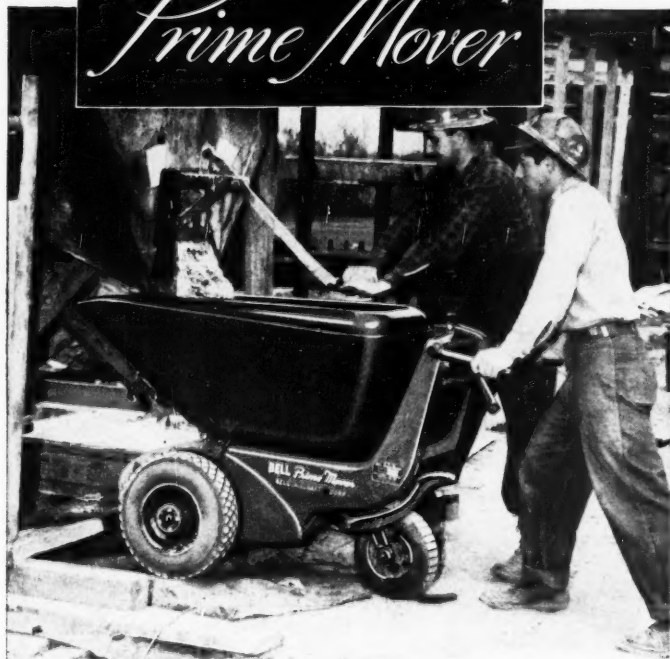
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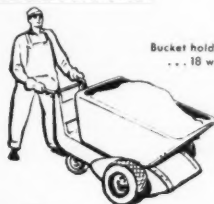
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**From Seattle, Wash.**—"We let your distributor demonstrate two machines on a concrete pouring job. Inside of a half an hour we pushed aside our six concrete buggies and finished the job with the two Prime Movers. In 7½ hours we poured 160 yards of concrete with only two men."

**From Yarmouth, Maine**—"We estimate that our Prime Mover saves two to three men per day on an operation previously requiring nine men. For example, two men now unload a 632-bag cement car in three hours and ten minutes. It used to take four men six hours."

**From Bastrop, La.**—"We save 48 man-hours a day hauling concrete, brick, tile, and other construction materials."

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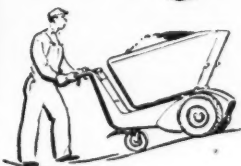
Bucket holds 10 cubic feet  
... 18 with sideboards



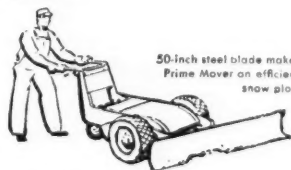
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job — even after a big yardage-life that  
would count most excavators out.

On the job — that's your Bucyrus-Erie. It's

**BUCYRUS  
ERIE**  
**The BEST buy Bucyrus,  
the best BUY in excavators**

a machine you can depend on for big output, especially when you need it most. It's a machine that works longer because it works easier.

You'll find Bucyrus-Erie dependability built into every one of the quickly-convertible shovels, draglines, dragshovels, and cranes in this  $\frac{3}{8}$  to  $2\frac{1}{2}$ -cubic-yard line. It's one of the reasons why the foremost users of excavators consistently "buy Bucyrus".

**Bucyrus-Erie Company**

South Milwaukee, Wisconsin

141C49



## Conservation

If you owned a home and rented it, you wouldn't think of letting the tenant operate a large, vibrating piece of factory machinery on the second floor. The place would be beaten to splinters in no time, and a valuable piece of your property would have been destroyed.

Yet, we as a people are standing by and countenancing the same sort of destruction to one of our most valuable pieces of property — our roads system.

The American Automobile Association, which should know, maintains that 18,000 pounds per axle load is the maximum compatible with good road maintenance, but there are trucks on the roads today which are loaded far in excess of this reasonable limitation.

Many states allow a larger load; many of those whose statutes set the limit at 18,000 pounds or lower are so lax in enforcement that their laws are virtually ignored. The most popular reason given by the politicians who are responsible for this state of affairs is that the truckers are an important source of state revenue, and that curtailing their operations is akin to cutting off one's nose to spite one's own face.

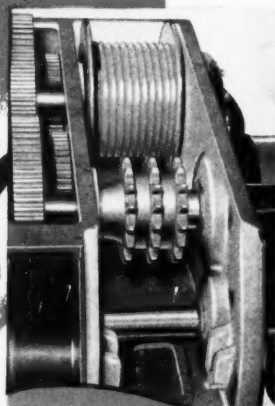
True, the trucking industry contributes largely to state treasuries by means of license fees, gasoline and oil taxes, and tolls for the many state-operated bridges and ferries, as well as in countless indirect methods. These contributions, however, are but a drop in the bucket compared with the cost of bringing our run-down roads up to snuff and keeping them there.

Very few people lately have done any amount of driving without encountering roads which were not dangerous—dangerous to the car if not to the driver's safety. Even the most well-built road will deteriorate rapidly if subjected to loads greater than those for which it was designed. Maybe it's time we looked on those overloaded trucks as a little more than a traffic inconvenience.

# THE "HEART" of Every UNIT



**HUSKY ONE-PIECE  
CAST GEAR CASE**



**Drop Forged Gears:**  
... Involute Spined Shafts ... All alloy steel and heat treated! Involute splines provide greater strength and eliminate wear ... No keys to replace ... No worn-out keyways. Forging "boots" toughness into these gears. Shafts are accurately ground for perfect alignment, and gears are precision cut to close limits.

## EXCLUSIVE WITH UNIT!

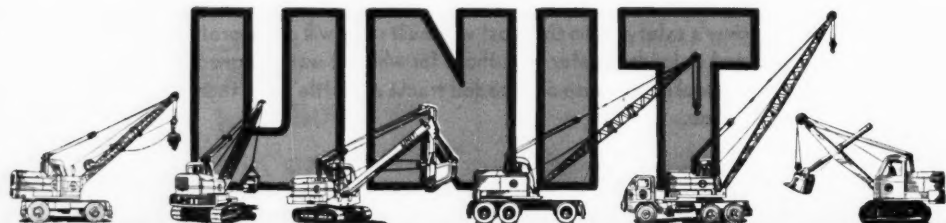
- All gears and shafts are completely enclosed in a constant flow of oil ... positive protection for all moving parts ... no chance for dust or dirt to cause abrasive wear.
- Bored for perfect alignment by a machine designed specifically for this accurate operation ... misalignment is impossible.
- Self-lubricating ... this case eliminates the need for frequent greasing or adjustment.
- All clutches are smooth operating, disc type, and completely interchangeable. Mounted on the higher speed countershafts instead of directly to drum shafts ... a modern, approved engineering practice.

## UNIT CRANE & SHOVEL CORP.

6303 WEST BURNHAM STREET • MILWAUKEE 14, WISCONSIN U. S. A.

Easy to service from all sides  
... Fewer parts ... Lower maintenance costs! Gasoline or Diesel engines are mounted "straight-in-line" with main machinery in every model ... Crawler or "rubber-tired" mobile UNITS available.

1/2 and 3/4 Yard Excavators  
— Cranes ... up to 15 tons



SHOVELS • DRAGLINES • CLAMSHELLS • CRANES • TRENCHERS • MAGNETS

# Announcing the New "Fleco" Heavy Duty Rock Rake

**"RUGGED CONSTRUCTION"**

## For Rock and Boulder Clearing Operations

Successfully used in rock-fill operations and construction of water reservoirs. Rocks and boulders embedded in the soil for centuries, now easily removed. Land, heretofore unproductive, is transformed into profitable farms.

These Rakes are constructed of durable, abrasive-resistant alloy steel castings, which are mounted on heavy angle-iron frames.

They are easily attached to the modified bulldozer in place of the moldboard. If the blade is detachable from the angling frame or from the push arms, a "Fleco" Rock Rake can be mounted.

The length and height of the "Fleco" Rock Rake is approximately the same as the moldboard it replaces.

Their rugged construction enables them to stand up under difficult clearing conditions.

Practically all of the dirt passes through the approximately 12 inch spacings between the teeth and a depth of approximately 16 inches can be obtained. Therefore, rocks and boulders can be removed from the soil without moving an excessive quantity of dirt.

### Florida Land Clearing Equipment Co.

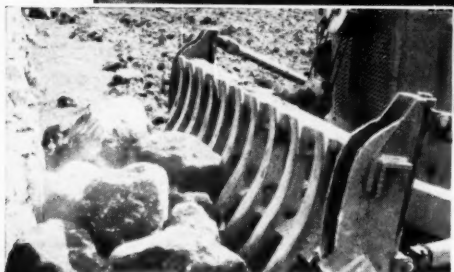
1561 W. Church St.

Jacksonville 3, Florida

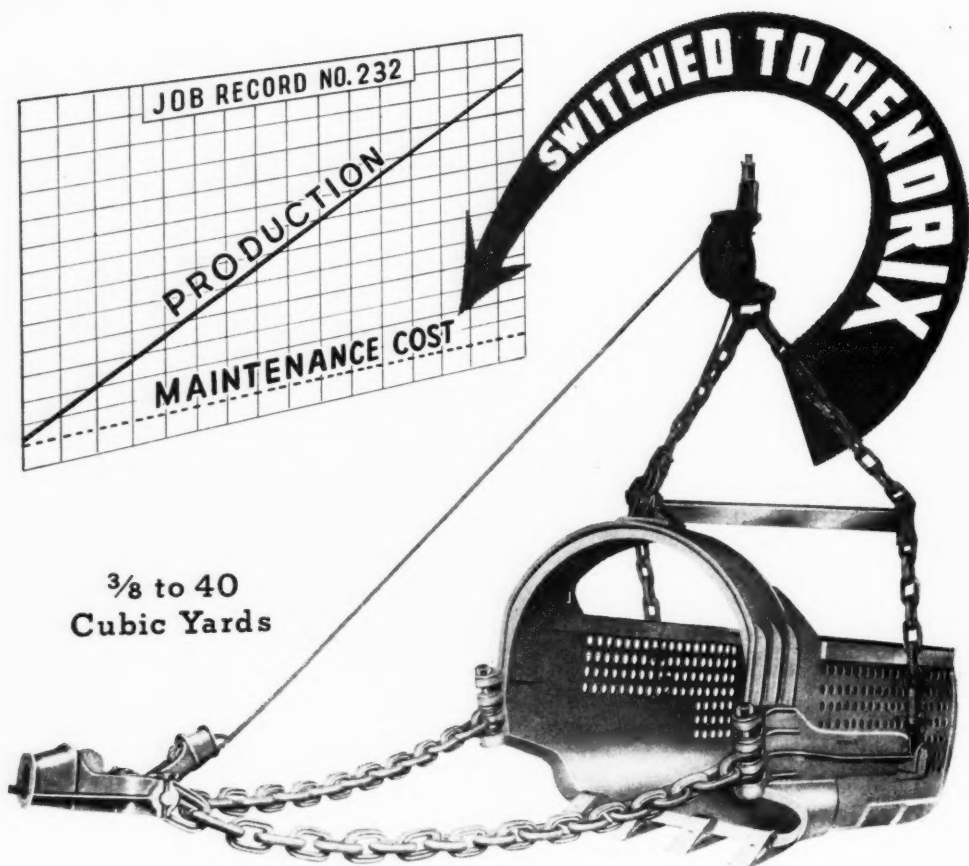
"Fleco" Products are distributed by the world-wide  
"Caterpillar" Sales Organization.

\* 4 views of rake mounted on a DB equipped with a C. T. Co. No. 2 A bulldozer. Owned and operated by Charles Hoffman, Gresham, Wisconsin. Clearing boulders and making land available for cultivation for first time.

\* This advertisement appeared in the February 1949 issue of CONSTRUCTION but the illustration captions were incorrect. The correct captions are as shown above.







## THAT'S HOW YOU CAN MAKE MORE PROFIT!

Many dragline operators who have "switched" to Hendrix Dragline Buckets are reporting bigger profits on each job. Some are quite frankly amazed when job reports are turned in to find that with a Hendrix there has been no delay due to break-downs . . . no maintenance cost for the bucket!

The HENDRIX, although lighter in weight than similar buckets, possesses sufficient stamina, ruggedness and wear-resisting qualities to give long-lasting service to the dragline operator. Cast manganese steel runners and wearing shoes on the TS and renewable manganese steel shoes for runners and wearing plates on the HS result in increased production through less loss of time while on the job.

**HENDRIX**  
*Lightweight*  
**DRAGLINE  
BUCKETS**

For descriptive literature ask your dealer  
or write to

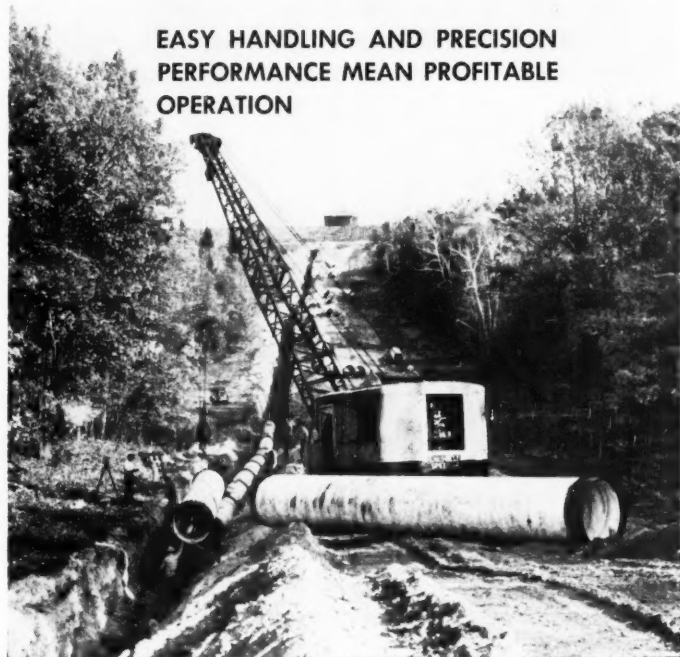
**HENDRIX MANUFACTURING CO., INC.**

MANSFIELD - LOUISIANA

## LINK-BELT SPEEDER

# CLIPS MONTHS OFF SCHEDULE

Take this water pipe job for example—Five miles of 48 inch steel pipe laid 8 feet deep on the average and finished three months ahead of time. The big, powerful, smoothly operated K-360 Link-Belt Speeder, ate its way into the hard pan steadily with "effortless ease". The 35 foot, 4 ton lengths of pipe were laid to rest with precision, and quickly! And the usual owner's comment, when the job is done, "My next machine will be another Link-Belt Speeder".



EASY HANDLING AND PRECISION  
PERFORMANCE MEAN PROFITABLE  
OPERATION

Demos Bros. of Springfield, Mass., used this Link-Belt Speeder K-360 with 11/4 yd. clamshell for digging trench 8 ft. deep, 8 ft. wide. With sling the same machine placed the huge pipe sections.

Link-Belt Speeder advanced engineering, honest construction and quickly available service add up to more profitable machine hours and greater returns on your investment. Your distributor will gladly show you the Link-Belt Speeder line of shovels, cranes and draglines, up to 3 yard capacity and explain the features which contribute to their outstanding performance.



### SPEED-O-MATIC CONTROL

"Speed-O-Matic" hydraulic control permanently eliminates all "lost motion"—actuates clutches faster and more smoothly. Operators will tell you the "Speed-O-Matic" control relieves manual effort and there is little or no fatigue after a good day's work. Get the facts today—find out how you, too, can greatly increase your output.

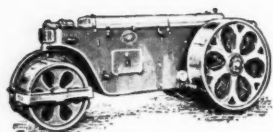
## LINK-BELT SPEEDER



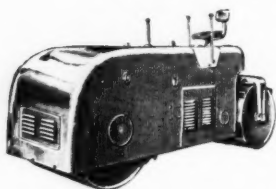
**FOR  
DEPENDABLE  
ALL-YEAR-  
ROUND  
PERFORMANCE  
ON MANY  
JOBS . . .**



## THE MAINTAINER IS YOUR BEST BUY



HUBER 3-WHEEL ROLLERS  
4 models — 4 to 12 Tons



HUBER TANDEM ROLLERS  
5 models — 3 to 14 Tons

Link your year-round maintenance problems with the Huber Maintainer. It's a versatile and dependable machine—built to handle every phase of highway, road, street, and airport maintenance at savings to you! The Huber Maintainer with its hydraulically operated auxiliary units is readily adaptable for service as a bulldozer, patch roller, lift loader, snow plow, rotary broom or berm leveler. Ask any experienced operator about the Maintainer! He'll speak well of Huber's advanced design . . . rugged "engineered" construction . . . rigid material specification . . . and other manufacturing skills that add up to dollar savings and longer years of trouble-free service for you.

Remember, too, that Huber's complete line of road machinery—3-wheel rollers . . . tandem rollers . . . trench rollers has for years been a standard in the construction field. See a Huber before you buy any road machinery. Write today for descriptive bulletins and name of dealer nearest you.



**THE HUBER MFG. COMPANY • MARION, OHIO, U. S. A.**

Leary & Owens Machinery Co., Inc.  
Birmingham, Ala.  
Leary & Owens Machinery Co., Inc.  
Montgomery, Ala.  
DENPSTER Brothers, Inc.  
Machinery Division  
Nashville, Knoxville, Chattanooga, Tenn.  
Tri-State Equipment Co.  
Memphis 2, Tenn.  
Tri-State Equipment Co.  
Little Rock, Ark.

Municipal Sales Co.  
Richmond, Va.  
Florida Equipment Co. of Jacksonville  
Jacksonville, Fla. (3)  
Florida Equipment Co. of Tampa  
Tampa, Fla.  
Florida Equipment Co. of Miami  
Miami, Fla.  
The Chesapeake Supply & Equip. Co.  
Baltimore 18, Maryland

Chesapeake Supply & Equip. Corp.  
Hyattsville, Maryland  
N. R. Hamell, Inc. (Maintainers Only)  
Charleston, W. Va.  
Gaines W. Harrison & Sons, Inc.  
Columbia, S. C.  
West Virginia Tractor & Equipment Co. (Rollers Only)  
Charleston, W. Va.; Clarksburg, W. Va.  
Gulf Engine & Equipment Co.  
Mobile, Ala.  
Good Roads Supply Co., Inc.  
Atlanta, Ga.



Non-Ferrous Tube Plant—Calumet & Hecla Consolidated Copper Co., Decatur, Ala.  
Foster & Creighton Co., Nashville, Genl. Contractor.  
Structural steelwork (4200 tons) fabricated and erected by Virginia Bridge.

## **FABRICATED STRUCTURAL STEEL For INDUSTRIAL PLANT CONSTRUCTION—ALL TYPES**

Daily we are fabricating and erecting the steel work for essential industrial plants that represent solid progress and greater production in Steel, Power, Transportation, Mining, Paper, Textiles, Chemicals and others. Many important and nationally known units of these great industries have found in VIRGINIA BRIDGE steel service the versatile experience and extensive resources to meet their exacting structural requirements.

*Welded or riveted, large or small, if it's structural steel  
we welcome your inquiries.*

# **Virginia Bridge Company**



ROANOKE

BIRMINGHAM

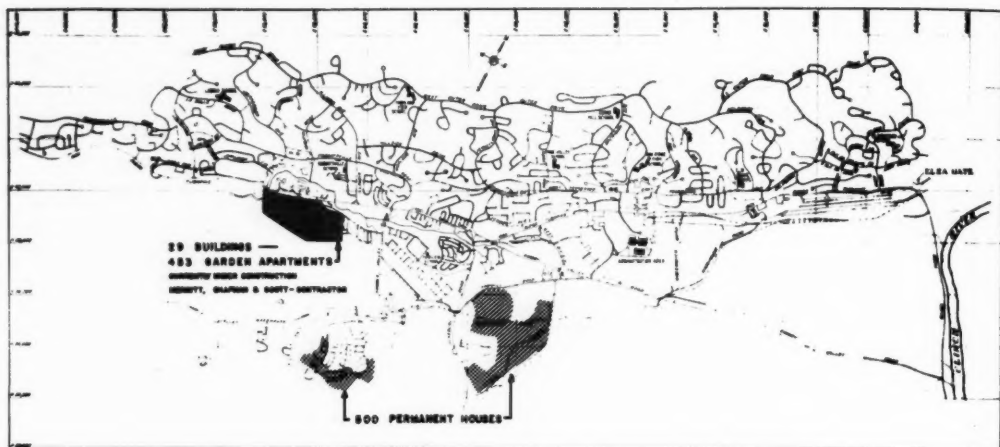
MEMPHIS

NEW YORK

ATLANTA

DALLAS

UNITED STATES STEEL



Above—Where the garden type apartments and 500 permanent homes are located.

## Oak Ridge Construction to Hit \$100,000,000

THE already huge construction program at the "atomic city" of Oak Ridge, Tenn. will soar to the hundred million dollar level when work is started this summer on the \$70,000,000 plant recently announced for production of fissionable material.

Maxon Construction Co., Inc., of Dayton, Ohio, is now engaged on the preliminary planning and scheduling incident to construction, while the Detroit firm of Giffels and Valler, Inc., is developing the detailed architectural plans and specifications for the project which will require two years to finish and 3,500 workers to construct.

### Preliminary Work Started

The Maxon firm will perform the preparatory layout and design of construction facilities and equipment, making labor force estimates and working out the planning and scheduling of construction operations and procurement of materials, although no actual construction for the big plant is included in the agreement.

The new installation will supplement the main gaseous diffusion plant at Oak Ridge, with its 127-acre industrial building understood to be one of the largest of its kind in the world. The first unit for concentration of U-235 went into production in February of 1945 after about eight-

een months of construction. A second gaseous diffusion plant is about one-fourth the size of the original unit. The facilities involved expenditure of \$500,000,000.

Ten other concerns are now engaged on prime construction contracts at Oak Ridge. These are A. Farnell Blair Co., Inc., Atlanta; Joe Cameron Construction Co., Knoxville; W. L. Hailey Co., Inc., Nashville; Harrison Construction Co., Maryville, Tenn.; John A. Johnson & Sons, Inc., Brooklyn, N. Y.; Merritt-Chapman & Scott Corp., New York; Midwest Fence Construction Co., St. Louis; Rentenbach Engineering Co., Knoxville; Ross Construction Co., also Knoxville, and Southern Piping & Erecting Co., Elizabethton, Tenn.

### Bids Asked for Dwellings

Bids are to be opened March 23 for construction of 343 single and duplex family dwelling units in an area east of Scarboro Road and south of Oak Ridge Turnpike. To adjoin a 500-home development on which construction is now under way, the project is the third step in a long-range program of permanent housing construction at Oak Ridge.

Merritt-Chapman & Scott, Inc., to whom the first housing contract was let at about \$8,000,000, has finished more than one-

third of the work on the 29 garden type apartment buildings to contain 453 living units. This development is south of the turnpike near Illinois Avenue. John A. Johnson & Sons, Inc., is preparing the site and laying foundations for 360 of the 500 single-family units east of Scarboro Road under a \$6,531,373 contract constituting the second phase of the housing program.

### Two Types Included

Two types of single family dwelling units are included in the housing for which bids will be opened in March. Seventy-three units will contain three bedrooms, a combination living-dining room, kitchen, bath and utility room, total space 906 square feet. Construction will be wood frame and siding, with an alternate of brick veneer. Seventy-two other units will contain four sleeping rooms, kitchen-dining room, bath and utility room, in 1045 square feet. Exteriors will be asbestos siding or stained cedar shingles.

Ninety-six duplex houses will consist of 46 two-bedroom units and 53 three-bedroom units, the one to have a living-dining room and the other a living room-dinette in addition to bath and kitchen. Asbestos siding, stained cedar shingles and gunite concrete construction will be employed. Roofing on all units will be cement asbestos shingles. Heating will be by coal-fired space heaters and furnaces with circulating warm air ducts and registers.

### Additional Units Planned

Future plans contemplate a new housing development of 286 housing units for negro families. These will be of frame construction with concrete block foundation walls, asphalt shingle roofing and asbestos and cedar shingle siding. Each individual living unit will cover 576

Below—Dwelling unit designed by Skidmore, Owings & Merrill.





square feet. Bids were opened February 16 for construction of seven dormitories to house single negro employees, with John A. Johnson & Sons, Inc., the low bidder at \$517,000.

John A. Johnson & Sons Co., Inc., is building the elementary school on Robertsville Road and an addition to the guest house, the one costing \$969,792. Two permanent warehouses were recently finished at a cost of \$1,476,400. A. Farnell Blair Co., Inc., is erecting the addition to the guest house, the main hotel at Oak Ridge, as well as an elementary school under a separate \$442,449 contract. Joe Cameron Construction Co. is adding four classrooms to each the Elm Grove and Pine Valley elementary schools.

#### School Proposals Soon

Bids are to be asked within a few weeks for construction of a new high school on a knoll east of Grove Center south of Providence Road. One of its features will be an auditorium with a seating capacity of 1,500, this to be used as both a school and civic gathering place. Upon completion of the project, the present high school will be converted to junior high school purposes.

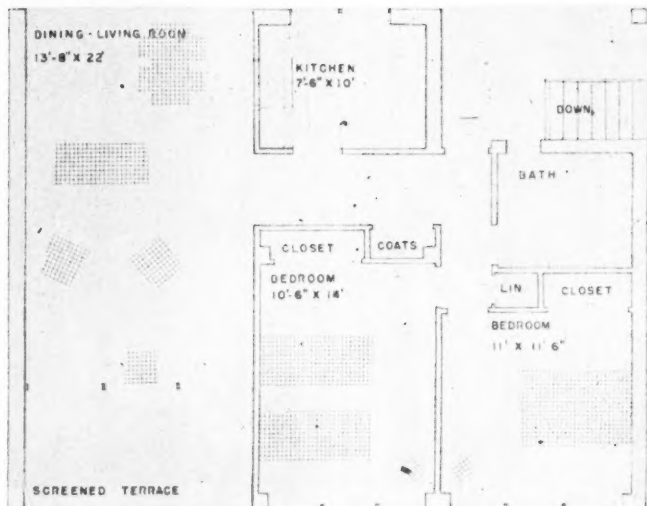
W. L. Hailey & Co., Inc., received the award for construction of a new 30-inch water main and approximately three miles of roadway. Under the low bid, that company is building the new alternate primary water main to extend from the water treatment plant near the electromagnetic plant to Jackson Square at Townsite.

#### Dual Purpose Main

The new main will serve a dual purpose. It will form the water supply for housing in the area east of Scarboro Road and south of Oak Ridge Turnpike and will supplement the existing supply in the vicinity of Jackson Square to meet underwriters requirements for a Class 3 rating. Water volume will be increased from the current 3,400 gallons a minute to 5,000 gallons.

In addition to the pipeline, the project includes a new road from a point on the Scarboro Road near the site for the new entrance to the electromagnetic plant to a point on the Oak Ridge Turnpike south of New York Avenue. The road is another feature of the long-range community development program. It will have an eight-inch stabilized base with a hot asphaltic concrete surface. Width will be 22 feet for two and one-half miles; 14 feet, for the balance of its length.

The first phase of the roadway and sidewalk improvement program was finished under a \$485,238 contract with Harrison Construction Co., which firm also held



Above—Floor plan of two-bedroom apartment.

the award for the second phase including roads and lanes, concrete entrance sidewalks and steps to 600 semi-permanent dwelling units in the north-central residential section and asphaltic surfacing on Bethel Bailey and Scarboro roads.

Three guard structures were built at the entrance to the restricted areas where the gaseous diffusion and electromagnetic plants and the national laboratory are located. Each is a concrete block structure two stories high and 28 by 56 feet. Rentenbach Construction Co. was the contractor, cost \$142,872. These were built prior to lifting the veil of secrecy from the 35,000-person town of Oak Ridge, so it might develop into a normal community.

#### Master Plan Developed

Austin Company, of Cleveland, Ohio, executed the contract for development of the master plan for permanent facilities at the Oak Ridge National Laboratory. Construction was not included in the agreement, which covered detailed drawings and specifications and engineering supervision when the construction contract is let for facilities for the physics, chemistry and other technical divisions, as well as administrative offices and service buildings including warehouses, shops and laundry.

Last fall contracts were let to George L. Cousins Contracting Co., St. Louis, Mo., for the facilities building to house the plant cafeteria, plant laundry and other service activities. The award for the boiler house foundation went to J. S. Alberici Construction Co., also of St. Louis. Piling for the buildings was driven by the Raymond Concrete Pile Co., of Kansas City and New York.

#### Biology Division Facilities

Construction of biology division facilities, the health physics development facilities, the water main and reservoir and metallurgy development was done by J. A. Jones Construction Co., of Charlotte, N. C.; Patchen and Zimmerman, of Augusta, Ga., were the engineers. Architectural engineers for the facilities building was Wedemeyer and Hecker, of St. Louis. Singmaster and Breyer, of New York, were architects-engineers for the other construction.

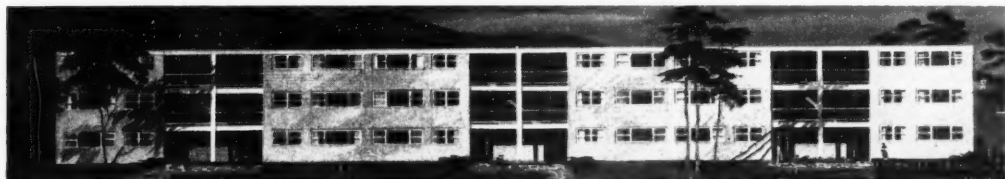
#### Other Recent Projects

Other recent projects include: Kerr Hollow Road reconstruction by the Ross Construction Co., of Knoxville, at \$158,457.

New patrol road by Roane-Anderson Co., of Oak Ridge, at \$116,000.

(Continued on page 76)

Below—Terrace elevation of permanent type apartment.





Above—\$62,000,000 Wolf Creek Dam now sixty-five per cent finished on the Cumberland River, in Russell County, Kentucky.

## Wolf Creek Dam, \$62,000,000 Cumberland River Project

**W**OLF Creek Dam, the cost of which has been estimated at \$62,000,000, is one of six projects in the Cumberland River valley, which in turn is part of the comprehensive plan for protecting the Ohio River basin from floods. It is located in Russell County, Kentucky, about 460 miles above the confluence of the Cumberland and Ohio Rivers. The structure will impound 6,000,000 acre-feet in a 64,000-acre reservoir. Upon completion it will be more than one mile long, of which 1,790 feet will be masonry and 3,940 feet earth fill. Maximum height will be 240 feet. Into its construction is going 1,300,000 cubic yards of concrete and approximately 9,000,000 cubic yards of earth embankment.

Construction of the dam was approximately sixty-five per cent complete on January 1. Major operations are being curtailed due to adverse weather conditions. Principal work now under way is excavation by suction dredge. Concrete and embankment work will be resumed when more favorable conditions permit.

### Quarry Operations

Aggregate for the project is obtained from a quarry located near Albany, Ky., approximately 12 miles from the dam site. It is necessary to work this quarry at two levels since an 8 to 14-foot shaley seam was found approximately 30 feet below the top of the face. The quarry face is divided into two geological formations. The lower 35 feet extends through the St. Louis while the upper 95 feet extends through the St. Genevieve.

Removal of the non-specification material necessitated a three stage quarry operation. After removal of five feet of overburden, approximately 35 feet of stone is quarried from the upper face. Then the argillaceous limestone is re-

moved and wasted. The third and final operation consists of quarrying the lower 85 foot face. Keystone drill rigs are utilized in drilling the quarry face and two 1½-yard Bucyrus-Erie 54B shovels load this material into end dump Euclid trucks.

### Aggregate Plant

Primary crushing and screening of quarry run material to minus 6-inch size is completed at the quarry site. The primary crushing equipment consists of two jaw-type crushers having an estimated capacity of 330 to 550 tons per hour.

At the primary plant all quarry fines and other unsatisfactory material is wasted. The minus 6-inch material from the surge pile storage is conveyed to a loading bin and trucked to the secondary crushing and screening plant. This plant produces four separate sizes of coarse aggregate and one size of fine aggregate. The coarse aggregate sizes are 6 to 3 inch, 3 to 1½ inch, 1½ inch to ¾ inch and ¾ inch to No. 4.

Specifications for the stone sand allow 4 to 15 per cent passing No. 100 sieve. Stone sand is produced by directing the minus ¾-inch material through a series of roll crushers—short cone crusher and hammermill. This plant is equipped with an air separator to control the gradation of stone sand. The average production of this plant is approximately 5,000 tons per day.

### Mixing Plant

Cement is trucked 32 miles from Jamestown, Tennessee, the nearest accessible railroad to the mixing plant. The trucks used for this haul have a special sealed 60 barrel capacity steel drum bed. The mixing plant is modern in design con-

taining three 4-yard tilt type mixers. From the mixer the concrete is discharged into a wet batch hopper from which it is poured into cars for transportation to the 8-yard bucket.

### Foundation Excavation

Initial foundation excavation was accomplished by the use of a dredge. This equipment contained a 15 inch AMSCO suction pump with a cutter head and was utilized in removing approximately 20 feet of silty and sandy overburden from the masonry section. The remaining five to ten feet of overburden was stripped to the bedrock by two 2½ yard Bucyrus-Erie 54B shovels. Also used were a TD-18 International powered Bucyrus-Erie cable bullgrader and a Bucyrus-Erie 44B crane swinging a two-yard clamshell bucket. This material was loaded into nine-yard rear dump Euclids and hauled to a refuse area downstream from the project. Rock excavation was accomplished by utilizing six Chicago Pneumatic G-200R and six Ingersoll-Rand FM-2 wagon drills, powered by two Ingersoll Rand 500 C.F.M. compressors, and fifty Ingersoll-Rand JD-4 and Cleveland H-10 jackhammers.

The second elevation required the use of another 54B shovel and an Insley ¾-yard clamshell for localized work.

### Concrete Placement

Concrete is placed from an overhead cableway suspended from two Mammoth head towers that move along a 2,800-foot radius tract located on the high side and a stationary tailtower beyond the last concrete monolith. An inter-communicating telephone system is utilized at loading and unloading points to spot the bucket in its

(Continued on page 77)



Above—Florida's only cement mill is located at Tampa. A division of General Portland Cement Co., the plant has doubled its output which now approximates 12,000,000 sacks of cement each year.

## Tampa's Post War Building Reaches \$126,857,000 Total

POST-WAR building in the Greater Tampa area has reached \$126,857,000, according to a recently completed survey.

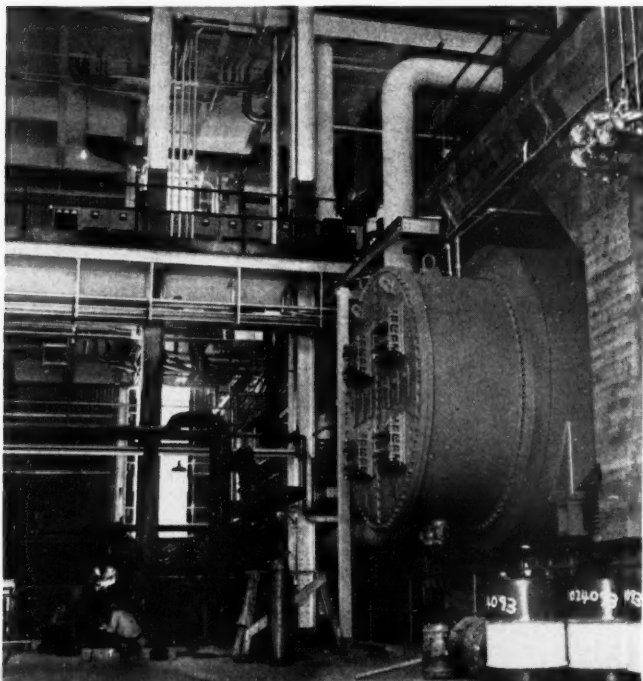
While not all of the projects listed have reached the ground-breaking stage, all have progressed beyond blueprints and for all but \$7,750,000 of the total, only the dove-tailing of construction schedules lies between their present status and completion.

Individual housing units — approximately 10,000 — account for \$73,250,000

of the area's total figure, according to the survey which covered Federal Housing Administration, contractors, realtors, banks, insurance companies and other sources, the final figures cleared and checked to avoid duplications.

Industry throughout the area which, because of the peculiar geography of Florida and Tampa's port facilities, serves generally as the distribution center for Florida, is pointed ahead and striving to make up for the war-enforced

Below—Interior of new power plant of Tampa Electric Co., which has a \$24,000,000 expansion program.



delays in expansion and improving.

Keeping pace is the Federal Government in its work on the harbor facilities. Bids have been opened for a \$500,000 dredging project in Tampa Bay and the U. S. Army Engineers will recommend to Congress a new harbor improvement program costing \$7,750,000. This latter item is the only one covered in the survey which has not finally cleared to the work stage. Both port projects are in addition to a \$350,000 dredging job which the Engineers completed last summer.

### Much Dredging Done

As a result of the dredging, the various port channels will accommodate vessels with a draft of 34 feet and part of the improvement was the cutting of a jetty to provide for easier turning of the big ships.

One of the largest of all the new industrial programs is that of the Tampa Electric Co., totalling \$24,000,000, a figure including a \$17,000,000 power plant already under construction.

Florida Portland Cement Co., whose factory here is the only cement plant in all of Florida, has embarked on a \$1,250,000 program doubling its capacity to 12 million sacks a year. The plant has been operating around the clock, seven days a week, since early war-time.

Peninsular Telephone Co., whose lines serve the Greater Tampa area, is keeping pace with a \$2,500,000 program embracing line extensions, installation of new equipment and improvement of old installations.

### Industrial Projects Listed

Florida's citrus and vegetable growing industry mean major outlets for canners and included in post-war building developments are a \$250,000 project of the American Can Co., and another of the same amount by the Continental Can Co.

Kudler Citrus Industries, with canning and citrus feed plants scattered throughout the citrus belt, recently opened a \$200,000 plant for the manufacture of citrus cattle feed, molasses and oil.

California Packing Co., Del Monte subsidiary, has completed a \$200,000 program and the Gaylord Container Corp. is erecting a \$150,000 addition.

ABC Steel Equipment Co., largest manufacturers of aluminum casement windows in the southeast, is spending \$100,000 to expand its facilities.

### Municipal Projects Included

Nor is the City of Tampa itself sitting back. It has underway several projects adding up to more than \$15,000,000. Principal municipal expenditures will be \$8,000,000 on a sanitary sewer system; \$2,000,000 on a suburban sanitary system which will tie into the city's own lines, and \$5,000,000 on a waterworks expansion and improvement program.

One of the most recent additions to the over-all program is the construction of two apartment buildings, each with 36 five-room units, on Tampa's beautiful Bayshore Boulevard. It is the first major building development to be started on this scenic boulevard since the Florida land

(Continued on page 61)



Above—Charles M. Upham, engineer-director, presided, and J. T. Callaway, the retiring president, delivered his report at the general conference session of the forty-sixth annual meeting of the American Road Builders' Association. Mr. Callaway is shown speaking in the picture at the left, as Mr. Upham studies his notes. The view at the right is of Mr. Upham speaking, while Hal H. Hale, executive secretary of the American Association of State Highway Officials, and Thomas H. MacDonald, commissioner of the Public Roads Association, prepare to talk to the assemblage of road builders.

## A. R. B. A. Backs Larger Road Expenditures

### Washington Conference Attended by 1200. Considered Plans for Current Problems. Pushes A. R. B. A. Expansion

LEADERS of the highway industry assembled at Washington for the forty-sixth meeting of the American Road Builders' Association were in effect unanimous in their declarations that an accelerated program involving at least twice the current expenditures is essential if the country's free wheel transportation routes are to survive what one speaker described as "an emergency in our highway situation."

Seriousness of the highway situation was emphasized by President Truman, who, in a message to the meeting, declared: "There is great need for a much

enlarged highway program in the United States." Congestion and unsafe conditions on main highways, especially in urban areas, he said, "make it imperative that improvements be made as rapidly as possible," continuing "we cannot afford delay in correcting highway deficiencies."

J. T. Callaway, the organization's retiring president, Enoch R. Needles, his successor and Charles M. Upham, longtime A.R.B.A. engineer-director and a recognized authority in the highway world, also emphasized the drastic need for more new construction; while Thomas H. MacDonald, head of the Public Roads

Administration added the warning that America's highways are being overloaded far beyond their capacity to carry the millions of American vehicles and the heavy loads of large trucking operations.

Hal H. Hale, executive secretary of the American Association of State Highway Officials, expressing his opinion as an individual, decried the current trend toward dispersion of the limited funds available over vast mileages of low cost roads and said "we must do everything we can to preserve the integrity of the primary highway system," which he called the backbone of the country's network of roads.

#### Toll Roads Attacked

Mr. Hale paralleled the alarm of the Commissioner of Public Roads with the statement that indiscriminate application of excessive loads can only result in destruction of the present road system, turning to the subject of toll roads to assert they are "not the bonanza or panacea for our present highway problems," because they cannot be built to compete with free routes as the public will use a free facility in preference to a toll route, they cannot effectively serve the bulk of traffic in an area and they never can serve the country as a whole because there will never be a connected toll system.

Mr. Callaway, in his annual report delivered at the general conference session stated that the American Highway system was not designed to accommodate the 40,000,000 vehicles now registered and that while the \$1,600,000,000 spent for improvements set a new record far exceeding any previous year, the expenditures when measured by pre-war accomplishment show that "old roads, widened and resurfaced, or new roads built fell far short of meeting the nation's vital needs.

"There are plenty of excuses, such as lack of equipment, too few engineers, shortage of materials, too high costs, but

Below—Don O. White, retiring president of the contractors' division, receives a plaque from his successor, Nello O. Teer, Durham, N. C., contractor.

Lauer Photos





Right — Spectacular highlight of the convention was the Roadbuilders' Banquet, attended by not only the country's leaders of the highway field, but of the Nation as well.

In the top picture are: W. J. Mann, secretary-treasurer of the Carolina Road Builders Association, Senator and Mrs. J. Melville Broughton, of North Carolina, and J. W. Thompson, head of the Carolina association.

At the table in the second picture are John R. and Mrs. Steelman, and Orvil Rush, Libby Anderson, Bryan Goode, Gus Dozier, both of Montgomery, Repr. and Mrs. Frank Boykin, of Alabama. Sen. and Mrs. John H. Overton, of Louisiana, and Sen. and Mrs. John J. Sparkman, of Alabama.

there is no excuse for our complacency in accepting these facts. On the contrary, there is an emergency in our highway situation. It should be declared as such, and emergency measures should be taken in behalf of a worthy remedy. A.R.B.A. should be part of a national plea for such action."

Commissioner MacDonald cautioned that "we are overloading our highways in their numerical capacity and in their structural capacity" and that the proof of the numerical overload is reflected by the accident record and of the weight overload, in the skyrocketing maintenance and reconstruction costs. To reduce the damage done by overloading, he said, axle loads in excess of 18,000 pounds should not be authorized. Revision of laws governing gross weight of vehicles should relate gross weight to the number and spacing of axles.

#### Truck Damage Cited

Damage caused by trucks was first recorded two decades ago, the Federal road agency head said, but it was not considered serious then as highways were being designed for 18,000-pound axle loads. Traffic surveys at that time showed only five to eight trucks in every thousand with such loads. Recent studies indicate 76 trucks in every thousand with axle loads of 18,000 pounds or more—

(Continued on next page)

Right—Also from Alabama were many at the table in the third view. These included Quin E. Flowers, president of the Alabama Road Builders Association, Mrs. Carter Manasco, Albert Raines, A. C. Dunn, H. W. Richardson, Mrs. George Andrews, Bob Vaile, Mrs. Ed. Rodgers, Repr. George W. Andrews of Alabama, Mrs. Quin Flowers, Winton M. Blount, Jr., and Carter Manasco.

Table 43, shown at the bottom, included a number of important people from Georgia. These were W. A. Young, of Cornell-Young Co., Macon; G. C. Coffee, of Coffee Brothers, Eastman; Repr. and Mrs. Stephen Pace, of Americus; Mrs. G. C. Coffee; Sen. Richard B. Russell, of Georgia; Mrs. Paul Andrews; Repr. and Mrs. James C. Davis, of Georgia, and Paul Andrews, executive secretary of the Georgia Highway Contractors' Association.





## A. R. B. A. Convention—continued



Above—Delegates jam the Mayflower ballroom at Roadbuilders' Reception.

Below — Enoch R. Needles, the new A. R. B. A. president, delivers his inaugural address. Mr. Needles is a partner in the Kansas City and New York engineering firm of Howard, Needles, Tammen & Bergendoff.



Below — The report of the manufacturers division is delivered by R. K. Stiles, its new president. Mr. Stiles is executive vice-president of the Austin Western Co., of Aurora, Ill.



(Continued from preceding page)

33 with 20,000 pounds and over and 14 with 22,000 pounds and up. Some range up to 40,420 pounds.

The damage caused by heavy loads since the war has become alarming and has occurred on all kinds of high-type pavements. Bituminous pavements are roughened and rutted. Excessive pressures knead the surface out of shape. Concrete pavements are subjected to pumping at the joints, causing ejection of the soil beneath. Without subgrade support the slab is then broken off by the heavy wheels and the process is repeated to cause widespread damage.

He termed as a waste of public funds the suggestion to gradually raise the axle load limits over a period of years and observed that while highway engineers can change their designs to meet new requirements, they have no method of raising the existing mileage to high standards except by reconstruction. Present maintenance is estimated to cost \$1,103,000,000 or seventy-two cents for each dollar expended for construction. A large proportion of the \$1,531,000,000 construction expenditure is for reconstruction of roads depreciated beyond the possibility of maintenance.

### Needles Discloses Goal

During his inaugural address, Enoch R. Needles, the new president traced the history of the A.R.B.A. and its association with the development of modern highways as a prelude to a disclosure of the goal for future A.R.B.A. operations, which includes an expansion that would broaden the membership and at the same time take the steps to build an administrative organization so the road builders group "will persist and prove effective beyond our years."

"The membership of our Association," he said, "is something on the order of a four-legged stool. Through the years it has proven equally stable. As long as we serve and maintain the integrity of each of the four legs, we will never be thrown off balance." He listed the groups as the

public servants, engineers, and educators, the contractors and builders and the equipment manufacturers and distributors.

"These four groups," he observed, "constitute the uniqueness and the strength of our Association. There is no other association quite like ours. Each group supplements the other. We have established our place over a period of years and we will continue to grow and serve the public in behalf of more and better highways."

Public relations and a more active educational program completed the new president's platform. He stressed the need of helping the educational division of the A.R.B.A. to influence more students and engineers into highway engineering and construction as a profitable field of endeavor and said: "We want the student engineers to progress toward graduation with a more intimate knowledge of what materials and equipment are and how highways are planned and how they are built."

### High Road Need Seen

Maj. Gen. Philip B. Fleming, administrator of the Federal Works Agency, at one of the luncheon meetings, made the prediction that the demand for highway improvements within the next ten years will exceed anything experienced in the past. He further stated that the country's highway transportation system in congested urban areas will eventually break down completely, "if we do not act soon to provide the facilities required for the fast and safe movement of large volumes of traffic into and out of our principal cities."

Ten years hence, he said, there may be 50,000,000 motorists attempting to "go places" with considerable difficulty due to the "glut of traffic on the highways." Rapidly increasing traffic has made it impossible for roadbuilders and planners to keep pace with the demand. Suspension of highway programs during the war aggravated the problem with thousands of miles of main highways now woefully deficient in design and battered to the point where reconstruction is the only solution.

### Big Spending Advocated

General Fleming estimated \$4,000,000,000 as the annual expenditure needed during the next fifteen or twenty years to put the Nation's city thoroughfares necessary maintenance to keep them in shape. He would integrate slum clearance and other civic improvements with highway construction to prevent "waste, inefficiency and duplication of effort."

Although expressways are under construction in a number of large cities, General Fleming observed, the improvement of urban highways in general has been retarded by difficulties in acquiring title to land for right-of-ways and in finding new homes for tenants of buildings that must be demolished to make way for the new routes. Some of the difficulties could be avoided if plans for slum clearance were tied in closely with plans for developments of express highways.

A far-reaching plan embracing all

(Continued on page 62)

# Carolina Road Builders Hold Annual Meeting

THE third Annual Meeting of the Carolina Road Builders Association held at the Ocean Forest Hotel, Myrtle Beach, S. C., was the most successful the group has had to date, from the standpoint of constructive business completed as well as entertainment. Approximately 300 members and guests attended the three-day session.

Outstanding speakers included Charles M. Upham, engineer-director of the American Road Builders Association; J. S. Bright, deputy commissioner, Public Roads Administration; Burton F. Miller, A.R.B.A.; Nello L. Teer, Jr., president of the Contractor's Division, A.R.B.A.; C. R. McMillan, chief highway commissioner, South Carolina State Highway Department; N. K. Dickerson, Monroe, N. C.; B. P. McWhorter, division engineer, Public Roads Administration; Sterry Mahaffey, engineer-director, Virginia Road Builders Association; W. E. Hawkins, North Carolina State construction engineer; and Cedric Foster, who delivered a radio broadcast.

## Bond Issue Favored

Members of the Association went on record in favor of Governor Kerr Scott's road program calling for \$200,000,000 bond issue. It was stated in the report at the general session that "... the association be directed to take such action as it deems appropriate to support Gov. Scott's proposed program, ... and to take such steps as the members of the Association deem necessary to provide necessary safeguards for the expenditure of said funds to the end that the public may receive the largest possible benefit in the permanent development of the State's road system."

The group also gave its unqualified endorsement to the proposed increase in the state's highway revenue by the addition of one cent on motor fuel.

It was agreed that the Board of Governors should be directed to cooperate with other interested agencies in the promotion of a constitutional amendment to prevent the diversion of motor user's taxes to any purpose other than the maintenance, improvement, and policing of the highway system.

## New Officers Elected

The following officers were reelected: J. W. Thompson, Greensboro, president; C. P. Ballenger, Jr., Greenville, S. C., vice-president; Warren J. Mann, Raleigh, secretary-treasurer; Charles Ross, Lillington, general counsel; E. H. Hines, Greenwood, S. C., ex-officio.

Newly elected members of the board of governors are: F. J. Blythe, Jr., Charlotte; J. B. Hunt, Jr., Raleigh; and Richard S. Simons, Columbia, S. C. Reelected members of the board are: J. P. McQuire, Durham, N. C.; Roy Geise, Columbia, S. C.; and W. W. Wannanaker, Orangeburg, S. C.

After the invocation by Rev. C. D. Brearley, Myrtle Beach Presbyterian Church, the group was welcomed to

Myrtle Beach by Mayor Harry Tallevast.

The opening address of Charles Upham started the program with a vigor and energy which contributed much to its success.

Speaking on "Highway Program Since the End of the War," Mr. Upham told the group that the nation's \$30,000,000,000 highway transportation system is the nation's assembly line, by means of which industry and agriculture have a quick and efficient means of transportation between origin and destination.

## Program Trend Down

"While the highway construction program has moved higher each year since the war ended," he said, "the annual increase now shows a declining trend or leveling off. Had the 1945-47 rate of highway construction expenditure increase continued, the highway construction expenditure for 1949 would have been well over \$2,000,000,000 instead of the estimated \$1,750,000,000."

Commenting on the highway problem in North Carolina, he pointed out that at the present time North Carolina has 60,000 miles of highways in its rural system, 10,000 miles of which are on the primary system and have been improved. "Of the 50,000 miles on the secondary system, 25,000 miles are still non-surfaced. The surfacing of this mileage would have a similar effect on the economy of the state as the paving program of the primary system during the twenties, by opening new territory for agriculture, industry and tourist trade," he said.

## Highway Use Up

Emphasizing the need of highways as felt by vehicle users, he pointed out that expansion of highway transportation has been revolutionized since the war ended. From a total of 30,525,000 motor vehicles registered in 1945, an increase of 10,032,000 in the following three-year period brought the total to 40,557,000 in 1948. Increase in freight rates has placed more demand upon the highways since there is an increase in use of trucks as a means of transportation. "The rapid expansion in the use of truck transportation however, is more definitely apparent by the fact that ton mileage nearly doubled during the three-year period increasing from 55,000,000,000 in 1945 to an estimated 100,000,000,000 in 1948," he said.

"At the end of the third postwar year the highway transportation situation is becoming serious," he continued. "Highways throughout the nation are deteriorating. Congestion is increasing at an alarming rate in metropolitan areas and the secondary highway system shows the same lack of improvement now as the primary highway system did prior to the highway building program of the twenties."

"The highway industry and progression must adjust itself to continued expansion until it has met the challenge of expanding automobile use," he said, "otherwise highway deficiencies will continue to ac-

cumulate and in time cause deterioration and ultimate stagnation to highway transportation."

Burton F. Miller, speaking on the subject of "Highway Construction Procedure," said that the amount of money being spent by States for equipment to carry out the highway construction program by the day labor, state forces "scheme" should be a major concern to all. Mr. Miller has been identified with the construction industry for 16 years, of which nine years were spent as executive assistant to Charles Upham, the position he now holds.

## Force Account Scored

"The issue of highway work being performed by state forces is the question going to the very root of our government," he said. "We face a socialistic trend—not just in the highway industry but in governmental housing projects, socialized medicine and other enterprises which are becoming more and more the full concern of our government being carried out by governmental forces. This trend is not just the concern of the contractors, but to all who believe in free enterprise," he went on to say. "The proposed road bond issue in North Carolina should not get by without a proposal as to how the money is to be spent."

The panel led by J. S. Bright took up the discussion of "Highway Construction Procedure as affected in part by relative economy of Contract Construction as compared with Force Account." Mr. Bright told the group that it was his firm belief that the contract method of construction is the best general policy, stating that the Public Roads Administration stands on the principle that experience has demonstrated the economy and efficiency of the contract method of construction for highway projects and is willing to make only limited exceptions to this rule.

## Contract System Cheaper

Nello L. Teer, president of Contractors' Division of A.R.B.A., discussing the force account problems at local levels, pointed to the trend in North Carolina toward more and more work by state forces, and declared that actual test cases have proved that work can be performed 60 per cent cheaper by contract system.

W. E. Hawkins spoke on the subject

(Continued on page 74)

## Federal Power Commission Authorizes 2,000 Miles of New Pipelines, Cost Estimated at \$191,382,265



Above—Stretched like a giant roller coaster as far as the eye can see is this 63-mile section of a 26-inch route proposed from Texas to Ohio by Texas Gas Transmission Co. The line will provide more natural gas for cities in Indiana, Ohio, Kentucky and Tennessee.

**T**RANSMISSION facilities designed to increase the capacity of the nation's natural gas pipeline systems by more than 600 million cubic feet daily and involving over 2,000 miles of new pipeline were authorized by the Federal Power Commission during the six-month period between July 1 and December 31, 1948, according to Chairman Nelson Lee Smith.

Total construction cost of these facilities was estimated at \$191,382,265, of which \$139,749,872 was for major projects estimated to cost \$700,000 or more. The larger projects are expected to benefit 32 cities of 50,000 population or over in 12 states and the District of Columbia as well as numerous smaller communities. Completion of these major projects will increase capacities of the systems involved by at least 580,100,000 cubic feet daily.

### Largest Single Project

Largest single authorization during the six-month period was for El Paso Natural Gas Co., to construct approximately 720 miles of pipeline which would add 180,000,000 cubic feet of daily delivery capacity to the company's system. Other large projects include the Tennessee Gas Transmission Company's authorization to construct 515 miles of pipe which would increase daily capacity of its system by 111,000,000 cubic feet daily, and the Southern California Gas Co., and Southern Counties Gas Co., of California 103-mile project, to add 100,000,000 cubic

feet a day to the capacity of the companies' systems.

The projects covered by certificates of public convenience and necessity issued by the Federal Power Commission during the semi-annual period involve construction of 2,203 miles of pipeline and installation of compressor units aggregating 150,304 horsepower. The larger projects costing \$700,000 or more account for 1,788 miles of the line and 141,570 horsepower in compressor units.

### Cities to Benefit

Cities of 50,000 population or more which will benefit as a result of the certificates issued include: Birmingham and Montgomery, Alabama; Phoenix and Tucson, Arizona; Los Angeles, Glendale, Pasadena and Santa Monica, California; Washington, D. C.; Atlanta, Columbus and Macon, Georgia; Lincoln and Omaha, Nebraska; Buffalo and Binghamton, New York; Columbus, Springfield, Dayton, Toledo, Hamilton and Cincinnati, Ohio; Pittsburgh and York, Pennsylvania; Memphis, Tennessee; Dallas, Fort Worth, Waco and Wichita Falls, Texas; Arlington County, Virginia; Charleston, Huntington and Wheeling, West Virginia.

### Certificates Number 423

The Commission issued a summary showing that the 423 certificates of convenience and necessity issued between February 7, 1942 and December 31, 1948 involved an estimated expenditure of \$1,-

253,690,485 and embraced 22,659 miles of lines as well as additional compressor horsepower amounting to 1,317,043. Largest expenditure for a fiscal year was from July 1, 1947 to June 30, 1948, when the 98 proposed projects totaled \$519,945,633 contrasted with the \$86,800 for the one project authorized from February 7 to June 30, 1942.

Certificates granted between July 1, 1948 and December 31, 1948 and authorizing estimated construction of \$700,000 or more per project are:

### Alabama-Tennessee Project

Alabama-Tennessee Natural Gas Co.—Construction and operation of 75 miles of 10 inch transmission pipeline from a connection with Tennessee Gas Transmission Company near Selmer, Tennessee, to near Tusculum, Alabama, 61 miles of 6 inch line on to Decatur and Huntsville, Alabama, and various small laterals; to supply a TVA project at Wilson Dam, Alabama and new markets in the communities of Corinth, Iuka, Florence, Sheffield, Tusculum, Muscle Shoals, Athens, and Hartselle, Alabama, with natural gas. Initial capacity 30,000 Mcf. per day; \$2,900,000.

Lone Star Gas Co.—Construction and operation of additional compressor facilities in Oklahoma and Texas of 6020 horsepower; facilities to increase daily capacity by 29,000 Mcf to meet the increase in demands of present markets in Texas and Oklahoma; \$1,059,500.

### Southern Natural Gas

Southern Natural Gas Co.—Construction and operation of additional compressor units of 15,000 H.P. at three stations and 11 miles of various loops between stations and miscellaneous facilities in Mississippi, Alabama, and Georgia; to increase main line delivery capacity by 35,000 Mcf per day to meet present market demands on its system and serve 10 small communities not previously served; \$3,531,000.

Ohio Fuel Gas Co.—Construction and operation of 61 miles of 20-inch pipeline in Wood, Seneca and Crawford Counties, Ohio, to replace smaller line; facilities to render more adequate and efficient service in Toledo, Fremont, and adjoining areas in Ohio; \$3,082,000.

United Natural Gas Co.—Construction and operation of 63 miles of various size lines and additions of 1,650 Compressor H.P. in its system in Pennsylvania; to improve and enlarge its transmission and underground storage system to permit efficient handling of large volumes of high local factor southwestern gas in order to meet peak demands of its customers; \$3,057,500.

Southern California Gas Co.; and Southern Counties Gas Co., of California —Construction and operation of 12 miles of 30-inch pipeline Rivera to Alhambra, California; to make an additional connec-

tion to the Texas-California pipeline to improve service in the Los Angeles Metropolitan area; \$1,494,000.

**Texas Gas Transmission Corp.**—Construction and operation of additional and new compressor units of 5,600 horsepower in Mississippi, Arkansas and Louisiana; to increase daily system capacity of the Memphis Division by 20,000 Mcf to supply increased demands in Memphis, Tennessee; \$843,943.

**Southern California Gas Co.**—Construction and operation of 73 mile pipeline from a point on the Texas-California pipeline near Desert Center, California, and extending into Imperial Valley to Calexico, California; to furnish natural gas service to the communities of Niland, Calipatria, Brawley, Imperial, Holtville, El Centro, Heber and Calexico in Imperial Valley, California whose estimated daily demand is 10,000 Mcf the first year and 16,000 Mcf in the fifth year; \$1,150,000.

#### Serve Virginia Markets

**Potomac Gas Co.**—Construction and operation of 18 miles of 16-inch line from Dranesville, Virginia, to Arlington County, Virginia; to enable Washington Gas Light Company to have a direct connection with its pipeline supplier for Virginia markets served by Rosslyn Gas Company, a subsidiary of Washington Gas Light Company; \$1,200,000.

**El Paso Natural Gas Co.**—Construction and operation of 450 miles of 30-inch transmission loop line from Lea County, New Mexico, to a point 58 miles east of Colorado River and paralleling a portion of present 26-inch line from Lea County, New Mexico to Blythe, California, 270 miles of various field, branch and lateral lines, and new and additional compressor facilities aggregating 70,900 horsepower in Texas, New Mexico, and Arizona; to supply an additional 100,000 Mcf per day to Southern California Gas Company and Southern Counties Gas Company of California and an additional 80,000 Mcf per day to customers in New Mexico, Arizona, and Texas; \$56,000,000.

#### Transport Texas Gas

**Southern California Gas Co.**; and **Southern Counties Gas of California**—Construction and operation of 88 miles of 30-inch loop line from Blythe connection with El Paso Natural Gas Company to Los Angeles area and 15 miles of 30-inch transmission line into Los Angeles and addition of 4,000 compressor H.P. at the existing Blythe, California, compressor station; facilities to enable Applicant to transport the additional 100,000 Mcf per day to be received from El Paso Natural Gas Company (Docket No. G-1051) to the Los Angeles area to meet increasing demands; \$10,040,000.

**Northern Nat. Gas Co.**—Construction and operation of 46 miles of 20-inch and 24-inch line, miscellaneous loop lines, and additional compressor units of 11,200 horsepower in Kansas, Iowa, and Nebraska; to increase system capacity by 45,000 Mcf daily to meet increasing demands of present markets; \$4,311,000.

**Troquois Gas Corp.**—Construction and operation of 13 miles of 22 inch loop line

in Erie County, New York and the enlargements and development of Collins, Zoar and Quaker Storage Fields; to provide an increased daily deliverability from storage to meet winter peak day demands of present customers particularly in the Buffalo, New York area and increase system capacity by 13,500 Mcf per day; \$1,357,000.

**Southern Natural Gas Co.**—Construction and operation of 8 miles of 24-inch main line loop, 9 miles of 12-inch branch line loop, and river crossings in Alabama; to increase the capacity of that portion of Applicant's system between Birmingham, Alabama and Atlanta, Georgia, thereby providing greater flexibility in meeting different load patterns and insuring supply of gas to present customers; \$865,160.

**Tennessee Gas Transmission Co.**—Construction and operation of 338 miles of 30-inch, 91 miles of 26-inch and 86 miles of 24-inch loop lines on main line from Texas to Kentucky, additions to various compressor stations aggregating 27,200 H.P. and miscellaneous facilities; to increase system capacity by 111,000 Mcf per day so that Applicant can transport such volume of gas from Texas to West Virginia for the Manufacturers Light and Heat Company; \$48,859,219.

### Maj. Gen. Lewis A. Pick, New Chief of Engineers

Maj. Gen. Lewis A. Pick, a native of Virginia and a graduate of that state's famed Virginia Polytechnic Institute, became chief of engineers of the United States Army on March 1, climaxing a long and distinguished career including service in both world wars.

Commissioned second lieutenant in the regular army after rising to the rank of captain of the engineers reserves, with the American Expeditionary Forces in the first world war, General Pick was first assigned to the regular army with the Ninth Corps Area at Presidio, Calif.

In January 1921 he was ordered to the Philippine Islands, joining the Third Engineers there. He served with the Fourteenth Engineers (Philippine Scouts) from September 1921 to April 1923. Upon his return to the United States he prepared engineer training regulations until September 1923. He was detailed to the Fort Humphreys Engineer School and graduated in June 1924.

Three years later he became professor of military science and tactics at the Alabama Polytechnic Institute at Auburn, Ala. The following August he was assigned to New Orleans as military assistant to the district engineer and from October 1927 to January 1928 was acting engineer there.

Subsequently named district engineer, he served in that capacity until August 1928 when he was transferred to the Agricultural and Mechanical College of Texas as professor of military science and tactics. Four years afterwards, he was sent to the Command and General Staff School at Fort Leavenworth, Kansas, being grad-

(Continued on page 39)



*Above — An automatic coating and wrapping machine pre-treats a 120-foot section of the Texas-Ohio line. Use of these specially developed machines and long pre-assembled pipe sections makes it possible to lay the new natural gas line at the rate of over a mile a day. This scene is between Memphis and Lulu, Miss., on the new 63-mile section of the 840-mile pipeline proposed by Texas Gas Transmission Co.*

*Below—Equipment at work on a 33-mile, 24-inch loop for Southern Natural Gas Co. in Alabama. A Caterpillar D7 tractor with dozer and rear-end winch working on the right-of-way is shown in the bottom view. The top picture depicts an Inslay backhoe clearing rock from a ditch. Draglines and clams were also used for the purpose.*







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This is the planetary transmission used so effectively on P&H Excavators. Through the use of this simple, proved principle, P&H provides operating characteristics which are unmatched for speed, smoothness and accuracy of control.

Where frequent reversals are required, such as for shovels or for the main drum in crane service, the planetary provides remarkable flexibility, yet delivers full power as positively as a gear.

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PLANETARY CHAIN CROWD provides full power for crowd and rapid reversal, with dipper return twice that of crowding speed. It's smooth, positive, and accurate enough to dig within an inch of grade.



PLANETARY BOOM HOIST is independent—triple safe. Safety lowering against engine compression makes it impossible for the boom to drop suddenly.

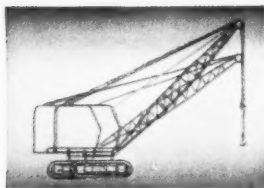


# and in crane service...

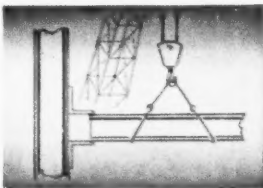
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Here's an operating feature you'll find on no other crane—planetary raising of both boom and load, together or independently. It is quick, easy and safe. And with load lowering against engine power, there's greater accuracy for "inching" heavy loads where utmost precision is required.



HERE'S A BIG ADVANTAGE in work such as steel erection. Operator can raise boom and load as machine moves forward, without forward motion of the boom point.



BOOM AND LOAD can be lowered smoothly, steadily, without jerking. This permits more precise handling of heavy members such as in fitting up structural steels.



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LODGE, South Carolina, The Lodge Auto & Truck Company  
RALEIGH, North Carolina, J. B. Hunt & Sons  
MIAMI, Florida, Neff Thomas Machinery, Inc.  
PANAMA CITY, Florida, Panama Machine & Supply Company  
KNOXVILLE, Tennessee, Brooks Equip. & Mfg. Co.  
SUMTER, South Carolina, Industrial Equip. Co. of S. Carolina



Above—Heyburn dam embankment, looking downstream, with the diversion channel in the foreground and borrow area "B" in the background. The left abutment is at the right and the outlet works at the left side of the picture.

## Heyburn Dam—Big Oklahoma Fill Project

**H**HEYBURN DAM, being constructed under direction of Col. C. H. Chorpensing, United States District Engineer at Tulsa, Okla., is now more than one-third finished, with completion scheduled for January of 1950. The main contract is being handled by Pool Construction Co., of Shawnee, Okla. Richard N. Palmer is resident engineer. Features of design and construction of the project, which is located midway between Sapulpa and Bristow, in Creek County, Oklahoma, several miles north of U. S. Highway 66, are described in the following paragraphs:

The structure is of rolled earth-fill type construction containing approximately 1,055,000 cubic yards of earth with a maximum height of 67 feet above the

stream bed and having a total length of 2,920 feet. The dam consists of an impervious core, semipervious sections each side of the core, and an unrolled upstream random blanket consisting of waste materials from the spillway and outlet works excavations. Upstream slopes above the conservation pool level will be protected by 1½ feet of dumped sandstone riprap over six inches of crushed graded rock. Downstream slope protection will consist of sprigging and overseeding. A downstream toe drain, consisting of a three-foot wide by 12-foot-deep trench filled with crushed rock and provided with a 12-inch-diameter perforated pipe draining into the diversion channel, will be constructed.

Located near the right abutment, the

outlet works will consist of an uncontrolled eight-foot three-inch diameter conduit with drop inlet and a stilling basin. The lip of the drop inlet will be curved in plan on a radius of 16 feet with crest at elevation 761.5. A headwall will extend across the downstream side of the vertical shaft, with wing walls continuing on either side of the headwall for a distance of 44.5 feet beyond the lip. Top of the walls will be at elevation 780.0. Three 36-inch-diameter low-flow pipes with manually operated pivot valves and entrance inverters at elevation 740.0 discharge into the upstream portion of the drop inlet. They will have a total discharge of 570 c.f.s. at elevation 761.5 and will provide for draining the reservoir below top of conservation pool.

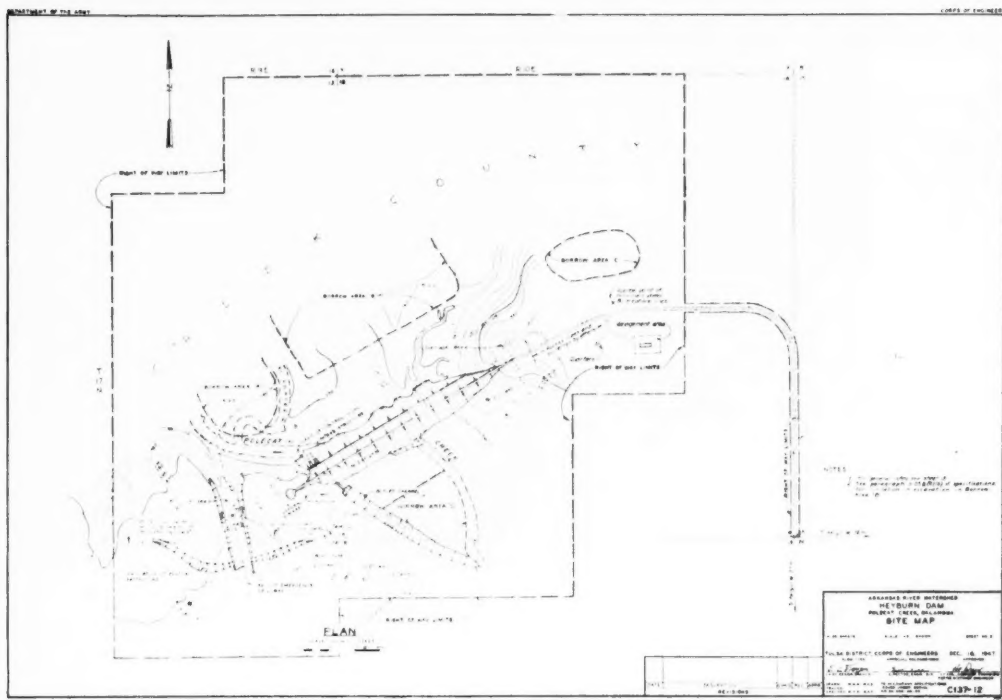
Below—The emergency spillway looking toward Polecat Creek and area "A."



### Standard Conduit Section

The standard conduit section will extend with straight alignment for a distance of 287 feet, and will be joined at its lower end by a 12-foot outlet transition which will effect a gradual change from the circular conduit section to a flat-bottom circular segment section of the same diameter at the outlet portal. Discharge capacity of the conduit with pool at top of flood-control pool will be 2,100 c.f.s.

The stilling basin will consist of a sloping apron with flared side walls and a basin proper with parallel side walls, two transverse rows of 4-foot, 6-inch high baffles and an end sill. Total length of the stilling basin will be 100 feet 3½ inches. In a distance of 30 feet downstream from the end sill, the out-



Above—Site Map of the Heyburn project.

let channel will increase to 30 feet in width and the invert will rise on a slope of 1 vertical on 10 horizontal to elevation 724.0. From this point to the river channel, approximately 1,800 feet downstream, the exit channel is slightly curved in plan with constant width and grade. Side slopes are 1 vertical on 2 horizontal.

An emergency spillway is located approximately 700 feet west of the right abutment in a low natural saddle. The unpaved approach and exit channels will have a bottom width of 200 feet and a total length of approximately 1,000 feet. The spillway will be uncontrolled and the crest will have a clear length of 200 feet at elevation 784.0. One foot of topsoil with sprigging and overseeding will protect the spillway from erosion. Discharge capacity of the spillway with the pool at top of maximum pool elevation 802.0 will be 53,700 c.f.s.

#### Cofferdams

The over-all cofferdam operation was planned to be constructed in two stages. Construction plans provided for the passage of stream flow through a diversion channel excavated in the right flood plain and joining the outlet channel approximately 450 feet downstream from the stilling basin. A stage one cofferdam extends around the upstream side of the outlet works intake site. Material contained in the cofferdam was obtained from the required excavation of the outlet works and is constructed to an elevation of 750.0 with a 1 vertical on 2.5 horizontal side slope on the water side and a 1 vertical on

1 horizontal side slope on the work side.

Another stage one cofferdam is located approximately 100 feet downstream from the stilling basin and is an unexcavated type. Since this particular cofferdam is located in the channel, it will be excavated to conform to the regular channel after completion of the outlet works. The remaining stage one cofferdam was constructed across the natural stream channel just below its junction with the diversion channel for the purpose of diverting the stream flow while the original stream channel was being consolidated into the embankment fill. This cofferdam has a top elevation of 744.0 and side slopes.

After completion of the outlet works, a second-stage cofferdam with top at elevation 750.0 will be constructed from the outlet works intake across the natural stream channel to natural ground on the opposite bank. The cofferdam around the outlet works intake will be cut to allow the stream flow to be diverted through the three 36-inch-diameter low-flow sluices and conduit proper during the closure of the earth embankment section. Drainage facilities will be built into the cofferdam to provide for drainage of water trapped within the area upstream from embankment and left of cofferdam.

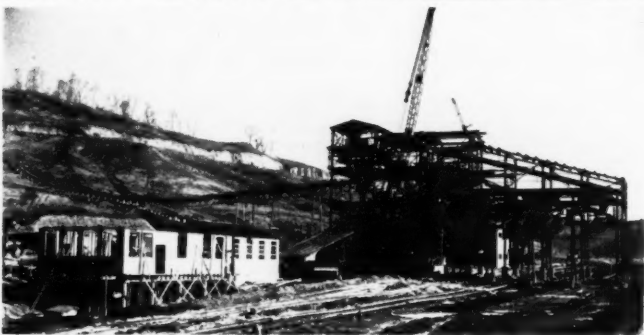
(Continued on page 68)

Below—Outlet works with diversion channel in the foreground, borrow area "A" in the background and the concrete batching plant in left background.



## \$3,365,000 Elk Creek Spur Constructed by B. & O. to Open Up Virgin Coal Deposits in Alleghanies

*Below—Top picture shows spur as it leaves east portal of Lough tunnel. The new Clinchfield tippie, with its long conveyor into the mine is shown in the middle view. At the bottom is the spur, as it was under construction.*



**E**LK Creek Spur is a \$3,365,000 extension of the Baltimore & Ohio Railroad built nine miles into the Alleghany mountains to open the way for large-scale shipments of high quality coal from a field located in Barbour and Harrison counties, West Virginia.

Specifically, the new rail line extends westward at the end of the Berryburg Branch from Berryburg, in the northern part of the state to a point near Overfield. Its exact length is 8.9 miles and in addition to the cuts and fills, track work, bridges and culverts, it included a 1,525-foot tunnel.

Lough tunnel, as the subterranean passage is called, is the largest of its kind bored on B. & O. lines in many years. It passes through abandoned mine workings in the Pittsburgh coal seam, this meaning that the usual problems of tunnel driving were complicated by various sizes and shapes of caverns, some of which were filled with water.

### Stream Banks Followed

The new spur passes through the tunnel on the outskirts of Berryburg and then follows the banks of Steuart run and Elk creek. The section along Steuart run is on a 1.5 per cent compensated grade; the remaining 3.5 miles along Elk creek being on a maximum grade of .5 per cent. Curvature ranges up to 10 degrees.

Construction of the spur required 1,000,000 cubic yards of grading, as well as erection of two bridges over the Elk stream. Subgrade width in the fills is 20 feet; in the cuts, 26 feet. Slopes of the fills is one and one-half to one, and of the cuts, one to one or one and one-half to one depending on conditions.

The three largest cuts involved 74,000 cubic yards, 80,000 cubic yards and 91,000 cubic yards, respectively. Largest fill was 140,000 cubic yards. This was 74 feet deep. It contains an eight by eight-foot reinforced concrete box culvert 286 feet long to allow passage of the stream through it.

### Single Track Line

A single track line, the spur drops from the high point of the 1,700-foot peak of the divide between the watersheds of the Tygart river and Elk creek to the valley floor, 335 feet below. It is laid with 131-pound rail on the one and one-half per cent grade and 100-pound rail on the remainder of the route.

Grading, drainage and other structural work on the spur was done by the Sutton Company, of Radford, Va., and the Empire Construction Co., of Baltimore, Md. Track was laid by A. S. Wikstrom, Inc., of Skaneateles, N. Y. Contractors for the tunnel were the Bates and Rutgers Construction Corp., of Chicago.

Forty thousand cubic yards of sandstone, shale and other materials were cored from the heart of the mountain to extend the track into the valley. In its



path was the Pittsburgh coal seam, which many years ago was mined by Consolidation Coal Co. In fact, the tunnel practically followed the same grade as the coal seam, its spring line being approximately two and one-half feet above the seam's bottom.

Height of the tunnel is 24 feet from the top of the tracks, this including 15 feet to the spring line or beginning of the arch section and nine feet from that point to the apex. Width or horizontal clearance is 18 feet.

#### Full Face Excavation

Excavation was accomplished at the rate of 12 feet in two 10-hour shifts. The contractors worked full face, using one drill jumbo equipped with a battery of 12 air drills powered by a gang of six compressors supplying 2,200 cubic feet of air a minute. Seventy holes were drilled for a 10-foot round, with the Conway electric mucker loading the blasted material into the five-yard dump cars drawn by the three dinky engines. The schedule was to drill and shoot twice daily. This meant an average of about 24 cubic yards to the foot, or about 150 cubic yards to the blast.

The excavation was immediately followed by installation of steel tunnel liner manufactured by Commercial Shearing & Stamping Co., of Youngstown, Ohio. This liner consisted of plates supported by eight-inch H-beams. The ribs rested on continuous mudsills of two 10-inch beams and were fastened through a 3/4-inch plate welded to the bottom of the post and held at the top by toggle bolts.

#### Standard Liner Used

Through the solid coal areas, the H-beams were set on four-foot centers and standard liner plate was used. In the abandoned mine workings with its profusion of caverns crossing the tunnel section, the contractors reduced the spacing of the H-beams to two-foot centers. Water-bar liner plates were used instead of the standard type. Estimates placed the weight of the liner plates at 2,500,000 pounds.

Concreting was started after the tunnel had been holed through. The 13,000 cubic yards of concrete was poured between the liner and the 60-foot traveling form by means of a Pumpcrete pneumatic machine, which was fed by concrete mixed inside the tunnel. The concrete, however, was dry-batched above ground. About 3,500 lineal feet of concrete gutters were lined with 18-inch half sections of vitrified pipe to drain the sulphur-water from the old mine workings.

#### Approach Excavation

Excavation for the tunnel approaches involved approximately 150,000 cubic yards of material. These cuts were made with Caterpillar scrapers, Tournapulls and a one and one-half yard shovel operating in conjunction with Euclid trucks.

Baltimore and Ohio engineers in charge of the work were A. C. Clarke, chief engineer, Baltimore; Joseph W. Jones, regional engineer, also Baltimore; George E. Norris, senior assistant engineer; Dave Dunn, project engineer, and Earl Scharper, resident engineer. John W. Rogers, Bates and Rogers, vice-president, acted for the contractor, with James Strong, superintendent.

The nine miles of railroad track with the necessary turnouts, road crossings and the erection of superstructure steel for two bridges was done by the Wikstrom forces. Hauling materials was the problem that had to be overcome, as the tunnel was not completed and this had to be accomplished by means of a construction road over the top of the mountain, as the distance around the mountain was too great. Electrical storms during the first five weeks of the work complicated the problem. Henry Barksdale was the Wikstrom superintendent.

#### Mine Finish Soon

The Compass mine of the Clinchfield Coal Corp. will be finished about March 15, according to Chief Engineer R. H. Hughes, under whom the engineering and construction was done by W. G. Quillen, Jr., general contractor of Philippi, W. Va. Preparation facilities are the work of the Fairmont Machinery Co., of Fairmont, W. Va., and the conveyor installation by Bristol Steel and Iron Works, of Bristol, Va. Daily production will approximate 8,000 tons, with the annual output estimated at 1,000,000 tons.

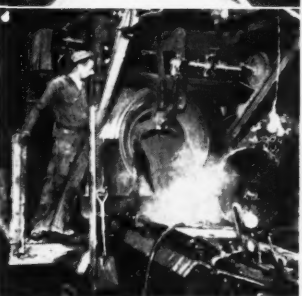
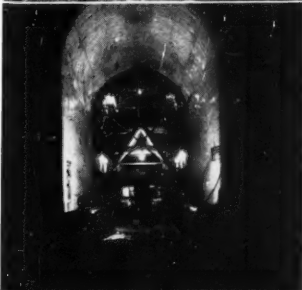
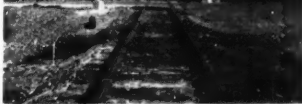
Current estimates place the profitable operating life of the mine at a quarter century or more. Its Pittsburgh seam coal—useful for coking and general steam purposes—will be consumed in manufacturing and utility plants in the Northeast and Canada. Some also may be exported to Holland. Output of the mine is expected to add \$1,445,000 yearly to B. & O. revenue.

#### 100,000,000 Tons of Coal

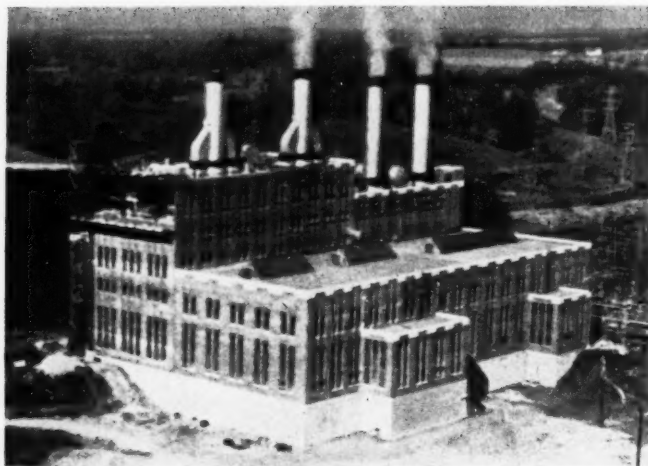
Barbours and Harrison counties, where the new mine is located, are underlain by an estimated 100,000,000 tons of recoverable coal in the Pittsburgh and Redstone seams. Both seams are of favorable thickness and of excellent quality, outcropping above stream level and thus desirable for economical mining operations.

Empire Construction Co., one of the participants in the B. & O. spur construction, has just been awarded the contract for the substructure of a \$300,000 bridge on the railroad's main line near Asquith Street, in Baltimore. McLean Contracting Co., also of Baltimore, is now proceeding on a B. & O. bridge over the Patapsco river at Potee Street in the same city. American Bridge Co., of Ambridge, Pa., is to furnish the structural steel. Superstructure erection contracts are not let.

*Right—At the top is a portal of the 1,525-foot Lough tunnel. The second picture is a straight stretch of the new spur as it crosses Highway 57, one of the larger cuts being shown in the background. The third picture is of the jumbo, which acted as a traveling inside form for the tunnel concrete. A gantry crane picks up a dump bucket from a train used to carry ingredients to the mixer in the background. This mixer discharges into the Pumpcrete machine which in turn forced the concrete between the forms.*







Above—Duke Power Company's Cliffside Steam Plant.

## Charlotte Construction Surges to All-Time High Level

by  
Thomas G. Lynch

**C**HARLOTTE, one of the brightest cities in the pattern of Southern development, literally and figuratively burst from its city limits during 1948—literally, by stretching its limits to embrace 10 more square miles of perimeter area; and figuratively, by piling up \$17,544,847 in building permits, the Carolinas' highest.

The great 1948 surge in construction activity was an all-time high for the Queen City and continued an upward spiral which had its beginnings back in 1943. Permits issued in 1943, one of the lean war years in private construction, amounted to only \$275,820; in 1944 the total rose sharply to \$741,789; in 1945 to \$4,136,264; in 1946 to \$10,595,956. If the tabulations for 1948 had included construction in the perimeter area, which became a part of the city at midnight December 31, the figure would have been substantially higher. Some of the largest

residential and commercial developments were just outside the city limits last year.

Charlotte, bursting with its \$17,544,847 worth of new construction, led its closest North Carolina rival, Greensboro, by more than \$7,000,000 last year. Raleigh, with only about half of the Charlotte figure, was third; Durham, fourth.

Although much of Charlotte's building was residential in nature, the greatest dollar value was in commercial and industrial construction centering in newly developed areas. A notable example of this is the vast Thrift Road area being developed by the Piedmont & Northern Railroad. P. & N. has already announced large construction programs involving 13 companies and has indicated that several more projects will be announced this year.

The largest single project now under construction in the Piedmont & Northern area is the \$1,250,000 warehouse for the Great Atlantic & Pacific Tea Co. When this vast warehouse is completed in May, it will become the distributive headquarters for 179 A. & P. stores in the Caro-

linas. The warehouse will measure 240 by 600 feet and embrace 162,000 square feet of usable space.

Several other companies having sizable projects under way in the P. & N. area are: Southern Radio Corp., Armour & Co., Southern Appliances Co., Power Farming Co., General Electric Co., and the Streitmann Biscuit Co. P. & N. is also grading additional land which will be used for future sites.

Another section which grew rapidly during 1948 was the area bordering on Dalton Avenue in the northern part of the city. Fruehauf Trailer Co. opened a \$400,000 trailer repair plant which is the largest repair unit south of New Jersey. Immediately adjacent to the Fruehauf building, the General Truck Co. is now erecting a plant to cost approximately \$150,000. Mack Truck Co. is also putting up new headquarters on Dalton Avenue.

Charlotte's retail distributive outlets had a big share in the building activity, too. Sears-Roebuck & Co. has shown its faith in the city as a shopping center second to none in the Carolinas by beginning the construction of a mammoth store on N. Tryon Street. This store, which should be completed this Spring, will contain more than 100,000 square feet of selling space and involve an investment of more than \$1,000,000. The Charlotte Sears store will be the only "A" store operated in the Carolinas. Other Southern "A" stores are located in Richmond, Atlanta, Miami, Jacksonville, Birmingham, and Knoxville.

Belk Brothers Co., a vast chain of 287 department stores with headquarters in Charlotte, is now constructing a modern building near the Charlotte store to house the organization's buying service. This building, which will contain about 90,000 square feet of floor space, will be used for fashion shows and merchandise displays for the benefit of the various Belk stores. In addition to beginning work on its new building, Belk Brothers remodeled and air conditioned the Charlotte store during the past year.

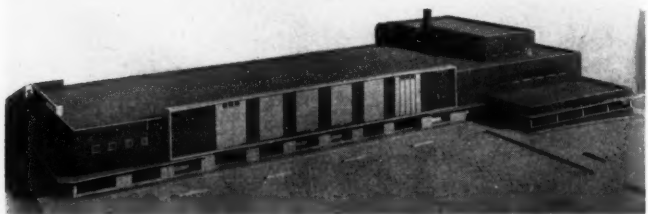
Other major department stores in Charlotte which are engaged in large improvement programs are J. B. Ivey & Co., (extensive remodeling of exterior, air conditioning, and installation of escalators); Efrid's Department Store (modernization and expansion); and Ed Mellon Company (expansion and remodeling).

Last year saw the construction of handsome branch banks of the American Trust Co. and the Wachovia Bank & Trust Co. Both of these banks are now making plans for additional branches to be constructed this year. This expansion program is part of a plan to decentralize banking activities because of the congested conditions existing in the downtown area.

Charlotte also made considerable headway in residential construction last year; but the demand for housing is still pressing. Vast new residential areas such as Selwyn Park, Sedgewick and the Plaza Road section, have sprung up almost overnight. Real estate developers estimate that approximately 1,800 dwelling units were completed in the metropolitan area during 1948, with many more on the way

(Continued on page 60)

Below—Sears-Roebuck's New Charlotte Retail Store.



# Southern Construction Projects

## HIGHWAYS, BRIDGES

(Continued from page 17)

**Venus & Co., Inc.**, Box 28, New Orleans, \$133,761.  
**Avoyelles**—State Proj. No. 35-03-10 and 35-02-08; Red River Bridge Approaches (Mondou), State Rt. No. 37; 2,758 mi. of grading, drainage structures and T. L. James & Co., Inc., Ruston, \$253,365.

**Concordia and Tensas**—State Proj. No. 20-01-02 and 20-04-02, Fed. Aid Proj. No. F-404 (3), Clayton-Azencia Hwy., State Rt. No. 3; 7,458 mi. of 22 foot Portland cement concrete pavement; T. L. James & Co., Inc., Ruston, \$329,379.

**NEW ORLEANS**—New Orleans Railroad Terminal Board, William G. Zetzmam, Chm., let following engineering contracts for grade separations in Union station plans: G. A. Heft & Co., Terminal Station Bldg., will plan overpass at Broad and Union passenger terminal tracks paralleling new canal, est. cost \$5,000,000, and underpass at Paris and New Orleans Terminal Company's outer belt tracks, est. cost \$350,000; David W. Godat & Assocs., Terminal Station Bldg., underpass costing \$500,000 at Franklin and Longview and Nashville tracks and overpass costing \$1,000,000 at Franklin and outer belt tracks and underpass costing \$250,000 at Marconi Drive and outer belt tracks; B. M. Dornblat & Assocs., Engineers, Carondelet Bldg., \$700,000 overpass at S. Carrollton and UPT tracks and Alvin M. Fromberg, 226 Carondelet, \$570,000 overpass at N. Galvez and Prasse.

## MARYLAND

**ANNAPOLIS**—W. Preston Lane, Jr., Gov., approved construction of a \$2,500,000 bridge across the Patuxent River between Charles and Calvert Counties, the span to be 3/4 of a mile long including the approaches will connect Halloway Road in Calvert County and Benedict, in Charles County; test borings have already been made.

**BALTIMORE**—Baltimore & Ohio Railroad has started construction of \$400,000 408-ft. bridge across Patuxent River on Curtis Bay Branch at Potee St. and has completed plans for reconstruction of Asquith St. bridge on Baltimore Belt Line; Potee St. bridge will replace 182 structures and will contain five steel plate girder spans each 80 ft. long; contractor for one over Patuxent River is McLean Contracting Co., Fidelity Bldg., for substructure; superstructure not yet let; details on Belt Line and main line bridge at Asquith St. will cost \$200,000, will be through plate girder span, be finished late in 1949; substructure contractor is Empire Construction Co., 31 S. Calvert; superstructure contract not yet let; structural steel for both bridges will be furnished by American Bridge Co., Ambridge, Pa.

**BALTIMORE**—State Roads Commission let contract for projects in following counties:  
**Anne Arundel**—Contract No. A-3-368-4-358; grading, drainage and surfacing of section of proposed Washington-Baltimore Expressway, construction of 3 interchange grade separation structures, 2 grade separation structures and approaches of Winterson Road, and grading, drainage and surfacing of connecting roadways toward Baltimore-Friendship International Airport, total distance 2,122 mi.; C. J. Langenfelder & Son, Inc., 8427 Pulaski Hwy., \$1,539,985.  
**Talbot**—Contract No. T-126-1-215; repairs to substructure and superstructure of existing concrete bridge over Miles River, State Route No. 370; Empire Construction Co., 31 S. Calvert St., \$149,835.  
**Queen Anne and Caroline**—Contract No. Q-224-1-215; Co-173-1-215; grading, drainage and surfacing of relocation of State Rt. No. 404, bypassing Queen Anne and Hillsboro 8.850 mi.; George & Lynch, Inc., Wilmington Del., \$255,430.  
**Caroline and Queen Anne's**—Contract No. Co-173-2-215; 2 steel beam and concrete bridges; one over Norwich Creek and one over Tuckahoe Creek on new Queen Anne-Hillsboro bypass; Empire Construction Co., 31 S. Calvert St., \$1,060,000.

**PRINCES ANNE**—Somerset County residents endorsed \$2,500,000 school and road improvement program.

## NORTH CAROLINA

**RALEIGH**—State Highway & Public Works Commission let contracts for projects in following counties:

**Washington**—Proj. 1972; Rea Construction Co., Charlotte, \$293,940.  
**Bladen**—Proj. 3024; Ballenger Paving Co., \$109,528.  
**Northampton**—Proj. 1706; F. D. Cline Construction Co., \$278,824.

## OKLAHOMA

**OKLAHOMA CITY**—State Highway Commission let contracts for projects in following counties:

**Pushmataha**—SH 7, 5.161 mi. grading, drainage asphalt concrete surface; Ryan Richards, 1401 N.W. 5th, Oklahoma City, \$267,282.

**Atoka and Coal**—U.S. 75, 7.940 mi. grading and drainage; W. E. Logan & Son, Muskogee, \$101,031.

**Woodward**—SH 11, 7.445 mi. grading, drainage, 2 multiple box culverts; Henryetta Construction Co., Henryetta, \$100,565.

## SOUTH CAROLINA

**COLUMBIA**—State Highway Department received low bids for projects in following counties:

**Alcona**—S.C. Doc. 2,261 Parts 1&2; Hubbard Construction, \$103,188.

**Berkely**—S.C. Doc. 8,270 Parts 1&2; Davis Morgan Construction Co., 301 Gadsden, \$131,927.

**Florence-Williamsburg**—S.C. Doc. 21,282 Parts 1&2; Davis Morgan Construction Co., 301 Gadsden, \$191,383.

**Orangeburg-Dorchester**—S.C. Doc. 38,327 and 18,249; Currahee Construction Co., \$104,066.

**Calhoun**—S.C. Docs. 9,248, Parts 1&2, 9,249 and 9,250, Parts 1&2, FAP 8-279(1); E. H. Hines Construction Co., Inc., Greenwood, \$192,790.

**Lancaster**—S.C. Docs. 20,247, 20,253 and 20,258, F. A. Proj. 8-273(1); Blankenship Bros., Charlotte, N. C., \$148,319.

**Lancaster**—S.C. Docs. 20,251, 20,255, 20,257, 20,263, 20,264, 20,265, 20,266 and 20,262, Parts 1&2; Hubbard Construction Co., Marion, \$258,326.

**Alcona**—S.C. Doc. 2,237, F. A. Proj. FI-431(3), FGI-431(4); Frank W. Lamotte, Columbia, \$129,104.

**Alcona**—S.C. Doc. 2,265, F. A. Proj. FI-431(2); Joseph W. Barnwell, Jr., Columbia, S. C., \$125,167.

**COLUMBIA**—State Highway Department received low bids for projects in following counties:

**Alcon-Barnwell**—2,212 mi. on roads 83, 115, 156, 117, 96, 118, 157 and 158, all streets in Ellenton, 8.5 mi. on Rd. 68, 4.823 mi. on Rd. 61; J. F. Cleeley & Co., Orangeburg, \$146,541.

**Florence**—4,270 mi. on road 28 from S.C. Industrial school near Florence easterly to Price's Gen. 5,426 mi. on road 35 from U.S. Rt. 301 at Matthews store; Wilson Construction Co., Marion, \$102,246.

**Kershaw**—14,471 mi. from U.S. Rt. 521 at Shamokin; W. F. Borne & Co., Augusta, Ga., \$139,043.

**Lexington**—2,658 mi. on road 115, 557 mi. on roads 121, 131 and 130, all streets in Lexington; W. F. Borne & Co., Augusta, Ga., \$90,967.

## TENNESSEE

**CHATTANOOGA**—City Commission received low bid from Lindsey-Davis Co., 401 N. Market, for repairs to Walnut St. bridge, \$179,985.

## TEXAS

**ANGLETON**—City plans 6 and 8-inch composition gravel base with 2-course asphalt top, \$190,000.

**AUSTIN**—State Highway Commission approved projects in following counties:

**Eastland and Palo Pinto**—Grading and drainage structures on State Hwy. 16, est. \$129,000.

**Galveston**—Improvement of State Hwy. 348 from 21 St. in Texas City to State Hwy. 146, est. \$257,000.

**AUSTIN**—State Highway Commission approved a \$402,000 program to pave 1.9 mi. of highways in Galveston County.

**AUSTIN**—City let contract to McKown & Sons, Tillery & Gonzalez Sts., for paving on Lamar Blvd. from West 24th St. to West 45th St., \$214,024.

**BEAUMONT**—Jefferson County, Judge, let contract to Harrison Engineering & Construction Corp., Texas City, for improvements on Lindberg Dr., Old Sour Lake Rd. and Washington Blvd., \$125,118.

**BEAUMONT**—State Highway Commission, Austin, let contract to McWilliams Dredging Co., P. O. Box 584, New Orleans, La., for Hwy. 73 and FM 823 for improvement of highway in Jefferson County, \$749,313.

**CORPUS CHRISTI**—City let contract to M-J Construction Co., Beeville, for paving on Water St., \$242,060.

**DALLAS**—State Highway Department let contract to Austin Road Company, 1000 Singleton Blvd., for 4.875 mi. of Hwy. 75 improvement between Sherman and Iron Ore Creek, \$454,964.

**EL PASO**—City let contract to Western Construction Co., Inc., El Paso, for superstructure and southeast wingwall of the Campbell St. Bridge; approaches to bridges on Campbell and West Main Sts. and all incidental and appurtenant work, \$153,662.

**FORT WORTH**—City, W. O. Jones, City Mgr., received low bid from General Construction Co., 3201 W. Vickery, for item No. 1, \$114,105, and item No. 2 for paving of Bailey Industrial Area, \$116,839.

**GALVESTON**—County Judge Theodore R. Robinson announced plans for \$3,300,000 countywide road and drainage improvement program.

**PASADENA**—City, Clyde T. Garry, Street Commissioner, let contract to Texala Construction Co., 2327 1/2 McCarty St., Houston, for storm sewers, \$28,477, and Pyramid Construction Co. for paving, \$150,000.

**PORT ARTHUR**—State Highway Commission let contract to McWilliams Dredging Co., New Orleans, La., for a 7 mi. sector of State Hwy. 73, Port Arthur-to-Houston shortline, \$729,313.

## VIRGINIA

Public Roads Administration, Arlington, received low bid from W. E. Graham & Sons, Cleveland, N. C., for part A, Project 1-1, Blue Ridge Parkway, \$530,762.

**RICHMOND**—State Highway Department received low bids for projects in following counties:

**Amherst**—Rts. 130 and 501, 1.15 mi. of macadam roadway along James River bluff from Snowden Bridge on Rt. 501 to end of macadam roadway completed last year; Ralph E. Mills, Inc., Salem, \$166,632.

**Stafford**—Rt. 17, 4.66 mi. construction work west of Fredericksburg; W. H. Scott, Franklin, \$266,351.

**Princess Anne**—U.S. 4975358, 1.60 mi. widening and new construction from U.S. Rt. 13 to Jennings Corner; Ames and Webb, Norfolk, \$248,827.

**Charlotte**—Rt. 40, 2.41 mi. work near Charlotte Courthouse; A. B. Burton, Lynchburg, \$108,518.

**Pager**—Rt. 12, 717-ft. bridge and approaches, Shomadoah River, Alma; Echols Brothers, Inc., Staunton, \$282,080.

**Mecklenburg**—U.S. Rt. 58, 2.52 mi. 24-ft. bridge from U.S. Rt. 1 west toward Boynton; Ralph E. Mills Co., Inc., Salem, \$220,381.

## WEST VIRGINIA

**CHARLESTON**—State Roads Commission received low bids for projects in following counties:

**Mineral**—Proj. No. F-480(1), Keyser-McCool Road, Bridge No. 1713; Whiting-Turner Construction Co., 30 National Marine Bank Bldg., Baltimore, Md., \$249,044.

**Mineral and Allegany**—Proj. No. F-481(1), Keyser-McCool Road, Bridge No. 1713; Agnew Construction Co., Ronover, \$111,908.

**Mineral**—Proj. No. F-480(1), Keyser-McCool Road, Bridge No. 1713; Virginia Bridge Co., 821 Madison Ave., N.E., \$272,670.

**Wood**—F-306(6), Parkersburg-Beck Road, road work; Charleston Construction Co., 3 Spring, Charleston, \$333,455.

**Jefferson**—Federal Proj. No. 1(1); Harpers Ferry Bridge No. 1461; M. J. Grove Lime Co., Lime Kiln, Md., \$112,820.

**Fayette and Summers**—Fed. Aid Proj. 8-358(1), Backus-Meadow Bridge Rd.; Acem Construction Co., Beckley, \$191,939.

## INDUSTRIAL

### Proposed Stage

## ALABAMA

**MOBILE**—Alabama, Tennessee and Northern Railroad plan improvement program over 214-mile-long A.T.&N. Railway system; \$1,300,000.

**MOBILE**—Hollingsworth & Whitney Co., Boston, Mass., plans \$13,300,000 expansion.

## ARKANSAS

**CAMDEN**—Ouachita Rural Electric Cooperative Corp., has REA loan for 269 miles line; \$530,000.

**LITTLE ROCK**—Arkansas Farmers Plant and Fertilizer Co., fertilizer plant; \$600,000.

**NORTH LITTLE ROCK**—Arkansas Power and Light Co., Pine Bluff, plans 111-mile transmission line from Lynch Power Plant in North Little Rock to Parkin; \$1,600,000.

## DISTRICT OF COLUMBIA

**WASHINGTON**—Chesapeake & Potomac Telephone Co., plans expenditures of \$3,777,000 for installation of long-distance dial equipment in its new annex in 700 block of 13th St.

(Continued on page 30)



Left—The new bridge is expected to be the largest bridge project in the country.

## Houston Faces Favorable Construction Prospects

### General Building

Houston's general building prospects are bright, according to a survey by the Houston Chamber of Commerce. The survey shows that the city's construction industry is expected to grow by 10% in 1964, compared with a 5% increase in 1963.

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### Industrial Construction

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office space downtown, for which the need is still great. These include a 12-story annex to the Gulf Building and an eight-story addition to the Commerce Building. A contract has also been let for a 16-story Telephone Annex Building in downtown Houston, for which a permit for \$1,800,000 was issued.

Construction is well along on the three-story-and-basement F. W. Woolworth structure being built at Main and McKinney. Sale price for the half-block tract of land on which the store is being built attracted nation-wide attention when announced as \$2,000 a front inch. Other Houston business firms have additional projects underway.

### March to be Big Month

March of this year will be a big month in Houston's construction scene, with nearly \$30,000,000 in building projects due to be completed that month. These include the 1100-room Shamrock Hotel and Hermann Hospital building projects.

The McCarthy Center project overshadows all of the other individual commercial construction projects of the Houston area. Here, the 18-story and basement Shamrock Hotel is nearing completion and will be officially opened on St. Patrick's Day, March 17. The \$18,000,000 project, which also includes a five-story and basement garage, was begun in June, 1946.

The \$3,500,000 Hermann Hospital and \$2,500,000 Hermann Professional Building are also due to be finished in March. The professional building is the first visible evidence on South Main of the tremendous program of the \$100,000,000 Texas Medical Center. Already completed is the \$2,500,000 Baylor University college of medicine.

### Medical Center Active

The medical center is predicted to see its greatest year of construction activity in 1949, with construction due to start on the new multi-million dollar Methodist Hospital building, the \$4,000,000 M. D. Anderson Hospital for Cancer Research, the Arabia Temple Children's Hospital and other medical center units.

Houston's tide of industrial expansion started before World War II is continuing to surge forward. With Houston as its focal point, the Gulf Coast chemical and industrial empire stretches eastward into Louisiana and south to Brownsville, at the southern tip of Texas. Close to \$2,000,000,000 is invested in this expansive area in plants that produce chemicals, oil and machine tools, paper, rubber, foods, clothing, building materials, furniture, gasoline and petroleum products and many other items from steel to hydrocarbons.

In the immediate Houston area many expansion products are under way or have been completed. These include: Shell Oil Company's \$33,000,000 expansion program at its Deer Park refinery; Shell Chemical Corporation's \$50,000,000 program at Deer Park; Diamond Alkali Company's \$14,500,000 chlorine and caustic soda plant on the Ship Channel; Rohm & Haas' \$5,000,000 plastic plant on the Channel; Gulf Chemical Company's \$1-



*Above—The \$5,000,000 Ezekiel W. Cullen administration and auditorium building under construction at the University of Houston. Alfred C. Finn is architect.*

000,000 fertilizer and phosphate plant, and Humble Oil and Refining Company's \$19,000,000 improvement program at Baytown.

### Huge Utility Program

The Houston Lighting and Power Co. has launched a \$30,000,000 expansion program; Port Houston, a \$9,000,000 improvement program, and Southwestern Bell Telephone Co. has started its \$2,000,000 expansion program. Sinclair Refining Co. has completed a multi-million-dollar addition to its refinery on the La Porte Road near Houston, and is now nearing completion of a pipe line to the Great Lakes. The two jobs make a total of \$30,000,000. Consolidated Chemicals, Inc., one of Houston's oldest of industrial chemical firms, has built a \$2,000,000 addition to its plant at Manchester; Coca-Cola Bottling Co., a \$1,000,000 plant in Houston, and the National Biscuit Co. is nearing completion on its \$6,000,000 bak-

ing plant in Houston, said to be the most modern in the world.

Phillips Chemical Co., subsidiary of Phillips Petroleum Co., has started on a chemical plant on the Houston Ship Channel which company officials said should result in a \$40,000,000 investment within five years.

All these industrial plants that have been completed in the past year or so and planned for the immediate future are added to hundreds of big and little industries that have been in the area for years.

### 13,000 Dwelling Units

To keep pace with this industrial expansion, home builders in 1948 constructed an estimated 13,000 dwelling units—500 more than were built in 1947. Home builders expect to put up even more units in 1949 if sufficient financing is available.

Much of the residential construction in

(Continued on page 59)

*Below—Two buildings in the \$100,000,000 Texas Medical Center at Houston. The 14-story Hermann professional building will provide space for physicians and dentists. In the background is the new \$3,000,000, 365-bed general unit of Hermann Hospital.*





# Southern Construction Projects

## INDUSTRIAL

(Continued from page 47)

### GEORGIA

**ATLANTA**—Georgia Power Co. plans \$24,000,000 construction program.  
**BRUNSWICK**—Atlantic Greyhound Corp. plans terminal building, \$100,000.  
**WEST POINT**—West Point Manufacturing Co. plans office building; \$400,000.

### KENTUCKY

**BOWLING GREEN**—Warren Rural Electric Cooperative Corp. has REA loan for 215 miles line; \$1,000,000.  
**McKEE**—Jackson County Rural Electric Cooperative Corp. has REA loan for 265 miles line; \$840,000.

### LOUISIANA

**SHREVEPORT**—Southwestern Gas and Electric Co. plans \$9,000,000 improvement program.

### MARYLAND

**CAMBRIDGE**—Choptank Electric Cooperative has authorization to issue promissory note for \$1,215,000 to expand lines.

### MISSISSIPPI

**LORMAN**—Southwest Mississippi Electric Power Association has REA loan, \$900,000, for 360 miles line.

### MISSOURI

**IRONTON**—Black River Electric Cooperative has REA loan, \$825,000, for 251 miles line.  
**LANCASTER**—Mo-Tri County Electric Cooperative Association has REA loan, \$1,150,000, for extension of electrical service.

### OKLAHOMA

**BINGER**—Radio Electric Cooperative has REA loan, \$635,000, for 314 miles line.  
**CHEROKEE**—Alfalfa Electric Cooperative has REA loan, \$740,000, for 227 miles line.

### TENNESSEE

**CHATTANOOGA**—Be-Ge Manufacturing Co., Gaffney, Calif., plans erection of a plant on a 20-acre tract between Daisy and Crutchfield Sts. and facing on Dodson Ave., \$300,000.  
**JOHNSONVILLE**—House of Representatives approved funds for \$2,500,000 Tennessee Valley Authority steam power plant.  
**MURFREESBORO**—Middle Tennessee Electric Membership Corp., Fred Key, has REA loan, \$1,000,000, for extension of power lines.  
**NASHVILLE**—Dr. Frank Fessy plans factory buildings, warehouse and develop 20-acre site as industrial park, \$750,000.  
**NASHVILLE**—Nashville Electric Service plans four new sub-stations and expansion of electrical distribution system, \$5,000,000.  
**NASHVILLE**—I. R. Schulman, Warner Bldg., Agent, plans warehouse and office building for sale and distribution of fabricated steel, Delaware and Charlotte Aves., & N. C. & St. L. Railway, \$400,000.  
**OAK RIDGE**—U. S. Atomic Energy Commission, David E. Lilienthal, Chmn., has selected Maxon Construction Co., P. O. Box 325, Oak Ridge, to carry out preliminary planning and scheduling incident to construction of a \$70,000,000 plant for the production of fissionable material.

### TEXAS

**BRACKETTVILLE**—Rio Grande Electric Cooperative has REA loan, \$1,070,000, for 726 miles line.  
**BRYAN**—City has REA loan, \$780,000, for 526 miles line.  
**DALLAS**—Lone Star Gas Co., Jackson and Harwood Sts., plans warehouse, garage and site improvements, \$445,945.  
**GALVESTON**—Houston Lighting and Power Co. plans \$1,000,000 construction program.  
**MINERAL WELLS**—Brazos River Gas Co. plans absorption plant, \$475,000.  
**TAHOCA**—Lyttelton Electric Cooperative has REA loan, \$815,000, for 358 miles lines.

### VIRGINIA

**JONESVILLE**—Powell Valley Electric Cooperative has REA loan, \$570,000, for 245 miles line.

## Contract Stage

### ALABAMA

**BIRMINGHAM**—Birmingham News-Age-Herald let contract to Daniel Construction Co., 322 7th Ave., South, Birmingham, for \$2,000,000 expansion program.

### FLORIDA

**JACKSONVILLE**—Fry Roofing Co., Chicago, let contract to Campbell-Lawrie Lauterbach Corp., Chicago, Ill., for plant, \$2,000,000.  
**MIAMI**—June Daires let contract to Edward Construction Co., 4203 Ponce de Leon Blvd., Coral Gables, for dairy, \$225,000.

### LOUISIANA

**BOGALUSA**—Gaylord Container Corp. let contract to L. O. Stocker Co., Suite 1673 Arcade Bldg., St. Louis, Mo., for \$2,000,000 bag plant.  
**NEW ORLEANS**—New Orleans Public Service, Inc., let contract to Bob Brothers Construction Co. at \$500,000 for air-conditioning system in general offices.  
**SHREVEPORT**—Bird Roofing Co., Aero Drive, let contract to Rust Engineering Co., Clark Bldg., Pittsburgh, Pa., for new felt mill addition, \$1,000,000.

### MARYLAND

**BALTIMORE**—Truscon Steel Co., Youngstown, Ohio, plans warehouse and sales office building, 4600 E. Monument St., \$250,000; owner builds.

### MISSISSIPPI

**HOLLY SPRINGS**—City sold \$150,000 bonds for gas system improvements.  
**STONEWALL**—Erwin Cotton Mills Co. has construction underway by Fiske-Carter Construction Co., Spartanburg, S. C., general contractor, for approximately 30,000 sq. ft. of warehouse floor space, \$135,000.

### NORTH CAROLINA

**CHARLOTTE**—Duke Power Co. sold \$40,000,000 of first and refunding 27½ per cent, 10-year bonds to syndicate headed by Halsey, Stuart and Co.; plans power plant work.

### OKLAHOMA

**OKLAHOMA CITY**—Fleming Co. let contract to Industrial Construction Co., 1627 West Main St., Oklahoma City, at \$190,867, for warehouses.

### SOUTH CAROLINA

**GAFFNEY**—Gaffney Manufacturing Co. let contract to Daniel Construction Co., 429 N. Main St., Greenville, for \$500,000 air-conditioning system in No. 1 and No. 2 mills, \$250,000.

### TENNESSEE

**ATHENS**—Mayfield Creamery let contract to John Martin Co., Inc., 1851 Central Ave., Chattanooga, at \$112,927, for creamery.  
**KINGSFORD**—Mead Corp. has building permit for two buildings to be built on its plant property, \$431,500; Austin Co. has general contract.  
**NASHVILLE**—Methodist Publishing House received low bid from B. C. Matthews, Inc., Nashville, at \$1,107,871, for printing plant addition.  
**NASHVILLE**—Franklin Limestone Co. let contract to Wright Contracting Co., Columbus, Ga., for asphalt mixer plant, \$100,000.

### TEXAS

**BRYAN**—City received low bid, \$477,199, from Thomas Bryan and Assoc., Inc., 620 Main Bldg., Houston, for steam power plant.  
**DALLAS**—Corpus Manufacturing Co. received low bid from George W. Blair, 207 N. Peak St., Dallas, at \$249,985, for remodeling.  
**LONE STAR**—Lone Star Steel Co. will construct plant to produce lightweight aggregate from slag for building blocks, \$175,000; owner builds.

### WEST VIRGINIA

**FAIRMONT**—Monongahela Power Co. sold \$6,000,000 First Mortgage Bonds to Equitable Securities Corp., 2 Wall St., New York, N. Y.  
**MONTGOMERY**—Chesapeake & Potomac Telephone Co. let contract to C. H. Jimison, Box 2181, Huntington, for telephone building, \$175,000.

## PRIVATE BUILDING

### Proposed Stage

### FLORIDA

**MIAMI**—R. & M. Corp., 740 Pennsylvania Ave., plans office building, with one store, for Federal Bureau of Investigation and U. S. Immigration Service, lease, \$250,000.  
**ST. PETERSBURG**—Master Modex Homes plans apartment project, Woodlawn Park, \$750,000.

### GEORGIA

**ATLANTA**—Atlanta Art Association plans replacing building, \$1,000,000.

### LOUISIANA

**LAKE CHARLES**—W. L. Paternostro, 225 Broad St., has plans nearing completion for theater building, \$350,000.  
**PINEVILLE**—Pineville Baptist Church plans educational buildings, \$200,000 and \$250,000.  
**SHREVEPORT**—First Baptist Church plans educational building, \$700,000.

### MARYLAND

**BALTIMORE**—Baltimore Goodwill Industries, 201 S. Broadway, Board of Directors, plans \$300,000 building.  
**BALTIMORE**—Grace North Baltimore Methodist Church plans repairing church, recently damaged by fire, and new structure, \$550,000.  
**BALTIMORE**—Brig. Gen. E. A. Zundel announced proposal for 100-unit housing project on Federal lands adjacent to Camp Holabird; in excess of \$1,000,000.

### MISSOURI

**COLUMBIA**—First Baptist Church plans enlarging church, \$150,000.  
**KANSAS CITY**—Gentry and Voskamp, Architects, have plans complete for \$7,000,000 apartment project.

### NORTH CAROLINA

**WILMINGTON**—Hanover Crest Apartments, Inc., plans \$1,000,000 apartment project on Wrightsville Beach Hwy.

### OKLAHOMA

**FORT SILL**—T. S. Engineer plans 117 new housing units, \$500,000.  
**OKLAHOMA CITY**—Mayfair Heights Baptist church plans church, NW 50th and May, \$150,000.

**PONCA CITY**—First Methodist Church plans \$150,000 improvements.  
**PONCA CITY**—First Baptist Church plans church and educational building, \$245,000.  
**TULSA**—Immanuel Baptist Church plans educational building, cost \$245,000.  
**TULSA**—I. A. Jacobson, Jacobson Brothers Construction Co., plans \$2,000,000 housing development, Ranch Acres.

### SOUTH CAROLINA

**CAMDEN**—Lewis Lee Clyburn and Charles Shannon, IV, plan \$100,000 building project, at junction off Lee St. and McCrae Mill Rd.

### TENNESSEE

**JACKSON**—J. A. Stanfill and Son, Jackson, Agents, have plans complete for 106 residences north of Mason St., \$900,000.  
**MEMPHIS**—Memphis Young Men's Christian Association plans Highland Heights branch building, \$400,000.

### TEXAS

**BRYAN**—College Avenue Baptist Church expects plans for church structure, \$300,000.  
**CORPUS CHRISTI**—Presbyterian Churches Extension Committee plans three churches, Baldwin Park, Alameda St. and Horne Road Ave., \$200,000.  
**DALLAS**—Moody and Tips, 701 Forest Ave. Rd., plans residential project, \$750,000.  
**FORT WORTH**—Corpus of Engineers, Major J. H. Boykin, T&P Bldg., plans 123 housing units at Carswell Air Force Base, \$2,332,570.  
**HOUSTON**—Magnolia Park Land Co. has plans in progress for 150 residences and shopping center, Baytown-Houston Hwy., \$1,500,000.  
**HOUSTON**—G. L. Smith, Mgr., Kress Store, plans \$2,000,000 annex at southwest corner Fannin and Capitol.  
**HOUSTON**—Housing Authority plans 5,000 low-rent housing units, \$25,000,000.  
**HOUSTON**—Best Homes, Inc., 3255 Rosedale Ave., has preliminary plans in progress for residential sub-division and shopping center, old Spanish Trail and Holmes Rd., \$500,000.  
**MINERAL WELLS**—Baker Hotel, E. J. Bonavides, Gen. Mgr., has improvements underway on hotel, \$150,000.  
**MINEROLA**—First Methodist Church Congregation plans new sanctuary and converting existing building into educational building, \$150,000.  
**ODessa**—First Baptist Church plans auditorium, cost \$500,000.  
**SULPHUR SPRINGS**—Sulphur Springs Methodist Church Congregation plans church, \$150,000.  
**WICHITA FALLS**—Morningside Park Estates, Inc., plans residences and apartments, Morningside Park, \$375,000.



# Southern Construction Projects

## Contract Stage

### ALABAMA

**ALABAMA CITY**—Daniel Construction Co. has contract for theater; \$250,000.

**BIRMINGHAM**—Finley Park Apartments, Lawson Gambill, and Frank Davies, let contract to J. H. West, at \$247,100, for apartments.

**FAIRFAX**—Fairfax Baptist Church received low bid, \$100,875 from Batson-Cook Co., West Point, Ga., for addition to school building.

**MONTGOMERY**—Pearson Tittle and Narrows, First National Bank Bldg., Archels, received low bid, \$193,000 from Bear Brothers for Hill Building additions and alterations.

### FLORIDA

**DADE COUNTY**—F. Thirty, Inc. let contract to Albert Construction Co., 3140 N. Miami Ave., Miami, for 48 residences.

**FORT LAUDERDALE**—Albert Rickel, 1400 SW 26th St., will build 50 residences; \$250,000.

**SURFIDE**—Rose-Marie Realty Corp. let contract to C. Winston Construction Co., 34 Almeria Ave., Coral Gables, for apartment building, 9316 Collins Ave.; \$164,000.

### GEORGIA

**FORT McPHERSON**—Hogan & Hormann, 134 Peach Dr., N. St., Petersburg, Fla., have contract at \$250,000, for 16-unit housing project, for U. S. Engineer, Savannah, Ga.

**SAVANNAH**—Morningstar Baptist Church will build church and Sunday school; \$250,000.

### LOUISIANA

**FARMVILLE**—First Baptist Church let contract to Jesse F. Heard and Sons, 2902 Lee Ave., Monroe, at \$148,750, for church and educational building, 1916 Druid Hill Ave.

**LAKE CHARLES**—T. A. Pittman let contract to Pittman Contracting Co., Inc., 2800 N. Galvez St., for \$325,000 theater Kirby, near Hodges St.

### MARYLAND

**BALTIMORE**—Young Men's Christian Association, 24 W. Franklin St., received low bid from The Davis Construction Co., 320 W. 21st St., \$414,440, for Y. M. C. A. branch addition and alterations, 1916 Druid Hill Ave.

**BALTIMORE**—Northwood Shopping Center, Inc., 4810 Roland Ave., let contract to Ring Engineering Co., Inc., Ring Bldg., Wash., D. C., at \$400,000, for shopping center, No. 2 and offices and motion picture building, 1332-50 Havenwood Ave., Northwood.

**BALTIMORE**—Albert Stark, 500 Morris Bldg., has plans complete for 33 apartment dwellings, 3304-34, 3301, 3312-35 Clark Lane; 3100-18, 3101-25 Bancroft Rd., Falstaff; \$1,500,000; owner builds.

**BALTIMORE COUNTY**—Loch Raven Village Apartments, Inc., Loch Raven Blvd., N. Taylor Ave., Towson, has plans complete for 11 apartment building, off Loch Raven Blvd. and north of Taylor Ave., Loch Raven Village Bldg.; \$880,000; owner builds.

### MISSISSIPPI

**VICKSBURG**—Joy Grand Theater, John Haddad, let contract to M. T. Reed Construction Co., Jackson, at \$100,000, for theater.

### NORTH CAROLINA

**FAYETTEVILLE**—Highlands Presbyterian Church let contract to Cable Contracting & Engineering Co., Greensboro, at \$339,000, for chapel, educational and recreational building.

### OKLAHOMA

**END**—First Baptist Church let contract to D. C. Bass & Sons Construction Co., at \$270,000, for educational building.

**LAWTON**—Andy Crosby, Jr., let contract to Thomas H. Lewis, Jr., for 60 residences; \$100,000.

**MIAMI**—Miller-Berkey Department Store let contract to Walter Schmidt, Miami, at \$150,000, for rebuilding department store, 19 N. Main.

**NORMAN**—First Baptist Church let contract to J. J. Bollinger Construction Co., Braniff Bldg., Oklahoma City, for church auditorium, Cleveland County; \$190,000.

### TENNESSEE

**CHATTANOOGA**—Interstate Life and Accident Co. let contract to Mark K. Wilson Co., at \$1,750,000 Interstate Life Building, McCallie Ave.

**CHATTANOOGA**—Dixie Savings Stores, Inc. let contract to Verhey Construction Co.,

Holly and Vine Sts., at \$224,880, for warehouse.

**NASHVILLE**—J. E. Crane Contracting Co. will build apartment house, corner Granny White Pike and Neelton Lane; \$400,000.

**NASHVILLE**—A. G. Homes, Inc., 816 8th Ave. S., let contract to Evans and Morris, for 103 dwellings, north of Vulture Bldg. and west of McGavock Pike; \$500,000.

**NASHVILLE**—Athens Homes, Inc., let contract to N. H. Baker, 1329 Demonbreun St., at \$250,000, for 50 residences.

### TEXAS

**ALAMO HEIGHTS**—Max Grossmann, 4130 Broadway, San Antonio, let contract to C. L. Browning, Jr., 512 Insurance Bldg., San Antonio, at \$181,987, for shopping center building, Broadway, from Grove Pl. to Arcadia St.

**CORPUS CHRISTI**—First Baptist Church congregation received low bid from E. Eisenhauer, 1124 N. Tanehua, at \$330,000, for church building, Ocean Dr.

**FORT WORTH**—Worth Builders, 603 First National Bank Bldg., will build 31 one-story residences, Morningstar Park addition; \$138,500.

**HOUSTON**—Leo F. Corrigan, Mercantile Bank Bldg., let contract to Curlee Construction Co., 6648 Main St., for theater and super shopping center; \$1,000,000.

**HOUSTON**—Alexander Zager, 900 Harris St., will build eight apartment buildings and shopping center, 900 Harris St.; \$500,000.

**HOUSTON**—Highland Village, S. N. Adams, 3713 Inwood Dr., will build 20 residences and shopping center, 4400 block Westheimer; \$750,000.

**HOUSTON**—William G. Farrington, 1719 Sunset Blvd., will build 600 residences, west of Post Oak Rd. at San Felipe Rd.; \$15,000,000.

**HOUSTON**—Plumb-Mitchell, Inc., 4550 Griggs Rd., has plans in progress for 300 residences and shopping center, Long Dr. at Telephone Rd.; \$2,500,000.

**HOUSTON**—Tom Rutland, Perry Monkin, H. L. Slaughter and L. C. Klump plan shopping center, Spring Branch Area; \$1,000,000.

**HOUSTON**—C. E. King, 4110 Dennis St., will build 52 apartment buildings; \$250,000.

**HOUSTON**—L. P. McKenzie, 2128 W. Alabama Ave., will build 16 apartment buildings, 3300 block Beaufontaine; \$372,000.

**HOUSTON**—Tom Rutland will build by force account 50 residences, south side city; \$310,000.

**WICHITA FALLS**—First Baptist Church received low bid from J. E. Morgan and Sons, P. O. Box 6029, Dallas, at \$266,606, for church.

## PUBLIC BUILDING

### Proposed Stage

### ALABAMA

**BIRMINGHAM**—Board of Education plans auditorium-gymnasium building at the West End High School, between \$600,000 and \$700,000.

### ARKANSAS

**HOT SPRINGS**—Board of Education plans two negro schools, \$1,250,000.

### DISTRICT OF COLUMBIA

**WASHINGTON**—Congress received a proposal to expend \$6,000,000 for repairs to Capitol; plans call for rebuilding east front of the Capitol's central portion; also a proposal for a \$2,274,500 appropriation for remodeling the House chamber and rebuilding the House roof.

### FLORIDA

**GAINESVILLE**—State Board of Control, Tallahassee, plans student service center, \$500,000, for University of Florida.

**MIAMI**—Dade County Commissioners plan addition to Jackson Memorial Hospital, \$2,500,000.

**MIAMI**—Dade County Commissioners plan auditorium, \$75,000.

**PENSACOLA**—Baptist Memorial Hospital plans general hospital, \$1,200,000.

### GEORGIA

**AUGUSTA**—Richmond County Board of Education sold \$1,000,000 bond issue for school improvements.

**GRIFFIN**—Griffin-Spalding County Hospital authority plans Griffin-Spalding County Hospital, \$1,000,000.

**MILLEDGEVILLE**—State Hospital Authority, Atlanta, may issue \$7,000,000 bond for improvements at State Hospital.

**THOMASTON**—Upson County Commissioners plan Upson County Hospital, \$800,000.

### LOUISIANA

**LOUISIANA**—State Board of Education, Baton Rouge, plans erecting building at Louisiana Polytechnic Institute, Ruston, La. Louisiana State College, Natchitoches, Louisiana Institute, Lafayette; Louisiana College, Hammond; \$3,000,000.

**DENHAM SPRINGS**—School Board of Denham Springs plans high school, \$200,000.

**JENNINGS**—Louisiana State Board of Education, Baton Rouge, plans Jefferson Davis Trade School, \$200,000.

**MADEVILLE**—Southeast Louisiana State Hospital Commission to have plans completed in June or first part of July for 400-bed hospital, \$2,500,000.

**NEW ORLEANS**—Andry & Fettel, Carondelet Bldg., New Orleans, Architects-Engineers, have working drawings for 5-story mental hospital for De Paul Sanitarium, \$1,250,000.

**VILLE PLATTE**—Evangeline Parish School Board plans voting at \$170,000 bond issue March 8 for school improvements.

### MARYLAND

**ANNAPOLIS**—Recommendations for new construction and repairs, as revealed by reports to the State Planning Commission, include: Department of Correction—Maryland Penitentiary \$1,170,000; Maryland House of Correction \$273,462; Maryland State Reformatory for Men \$274,000; Maryland State Reformatory for Women \$205,000; St. Mary's Female Seminary \$669,000; Maryland State Police \$406,450; Military Department \$700,000; Hall of Records Commission \$55,000; Board of Natural Resources—Department of Research and Education \$149,160; State Department of Forests and Parks \$1,775,200; Game and Inland Fish Commission \$72,000; Department of Tidewater Fisheries \$100,000.

**ANNAPOLIS**—Recommendations for new construction and repairs, as revealed by reports to the State Planning Commission, include: State Department of Mental Hygiene—Baltimore \$1,600,000; Chronic Disease Hospitals \$6,864,000; Deers Head Hospital \$349,000; State Tuberculosis Sanatoria—Salisbury Branch \$1,022,700; Pine Bluff Branch \$28,500; Henrytown Branch \$761,300; Mount Wilson \$4,307,500; Miners Hospital \$313,770; Board of Mental Hygiene—Springfield State Hospital \$10,607,746; Spring Grove State Hospital \$3,182,628; Eastern Shore State Hospital \$1,925,000; Crownsville State Hospital \$10,604,656.

**ANNAPOLIS**—Recommendations for new construction and repairs, as revealed by reports to the State Planning Commission, include: Rosewood State Training School, \$8,000,300; Frostburg State Teachers' College, \$2,615,000; Towson State Teachers' College, \$3,232,000; Bowie State Teachers' College, \$2,465,000; Salisbury State Teachers' College, \$1,750,000; Maryland Training School for Boys \$2,325,100; Maryland Training School for Colored Girls, \$1,014,371; Cheltenham School for Boys, \$479,467; Montrose School for Girls, \$608,100; Maryland Training School for Colored Boys, \$3,645,994; Maryland State School for the Deaf, \$230,750; Morgan State College, \$4,976,216; College Park, \$13,975,002; Crisfield Sea Foods Laboratory, \$60,000; Southern Maryland Tobacco Research Farm, \$30,000; Baltimore Branches, \$2,550,000; Princess Anne College, \$3,755,000; Salisbury, \$129,100; Howard County Animal Husbandry Farm, \$84,500; Johns Hopkins University, \$2,500,000.

**ANNAPOLIS**—Governor W. Preston Lane, Annapolis recommended a \$20,000,000 capital outlay for construction work at the five State Mental Hospitals.

**ANNAPOLIS**—State Planning Commission recommended to Governor W. Preston Lane a capital improvements program for Maryland amounting to \$31,776,900.

**BALTIMORE**—Associated Jewish Charities has selected James R. Edmunds, Jr., 505 Park Ave., as Archt., for projected Jewish Medical Center on a 10-acre tract at Greenspring and Redwilde Aves., between \$5,000,000 and \$10,000,000.

**CRISFIELD**—Somerset County approved \$1,500,000 bond issue for school improvements.

**LEONARDTOWN**—State Legislation considering \$550,000 school construction bonds.

**PRINCES ANNE**—Somerset County Indorsed a \$2,500,000 school and road improvement program.

**SALISBURY**—Wicomico County Board of Commissioners approved two new high schools, costing \$3,500,000; one school would serve as a secondary institution for white students, the other would be a combination junior-senior high school for negroes.

**SILVER SPRING**—Board of Trustees of Silver Spring Memorial Hospital Association, Inc. plan asking Montgomery County Council to issue a \$1,500,000 bond issue.

(Continued on page 32)

# Southern Construction Projects

## PUBLIC BUILDING

(Continued from page 51)

### MISSISSIPPI

**GREENWOOD**—City considering \$1,250,000 bond issue for improvement and enlargement of school facilities.

**IRUKA**—Board of Supervisors of Tishomingo County, plans Tishomingo County Hospital and Health Center, \$190,000.

**MAGEE**—Mississippi State Sanatorium plans 154-bed negro tubercular building; \$1,800,000 available.

### MISSOURI

**INDEPENDENCE**—City interested in erection of Memorial Building in honor of President Harry S. Truman, \$5,000,000; would be known as "Truman Building."

**ST. LOUIS**—St. Louis University, 221 N. Grand Blvd., plans library building; \$1,250,000.

### OKLAHOMA

**OKLAHOMA CITY**—Oklahoma Medical Research Foundation, Medical Arts Bldg., plans medical research building on tract east of University of Oklahoma Medical School on North E. 13th; cost including equipment, \$1,000,000.

**OKLAHOMA CITY**—University of Oklahoma City, plans memorial library and religion building, \$650,000.

### TEXAS

**BEAUMONT**—Stone and Pitts, 1872 Calder Ave., Archts.-Engrs., will have plans and specifications completed some time in May for changing present brick building into 12 classrooms; add 26 new classrooms; home economics shop, gymnasium, cafeteria and auditorium, \$686,000, for Carroll School.

**BEAUMONT**—Stone and Pitts, 1872 Calder Ave., Archts.-Engrs., will have plans and specifications completed some time in March for Beaumont High School, \$590,000.

**BEAUMONT**—Stone and Pitts, 1872 Calder Ave., Archts.-Engrs., will have plans and specifications completed some time in April for new elementary school, \$200,000.

**BEAUMONT**—Stone and Pitts, 1872 Calder Ave., Archts.-Engrs., will have plans and specifications completed some time in March for repairs, change to an elementary school for Pollard School, \$153,000.

**BEAUMONT**—Stone and Pitts, 1872 Calder Ave., Archts.-Engrs., have plans and specifications completed for ten new classrooms, office, toilets, auditorium and cafeteria for Adams School, \$155,000.

**BEAUMONT**—Stone and Pitts, 1872 Calder Ave., Archts.-Engrs., will have plans and specifications completed some time in April for Dick Dowling School, includes repairs and playground for girls, \$110,000; new playground, \$34,000; \$76,000 for repairs.

**GALVESTON**—University of Texas Medical School plans general hospital and private pavilion, \$2,000,000.

**GILMER**—Gilmer Independent School District plans high school, \$200,000.

**GREGGTON**—Board of Education plans high school and gymnasium for Pine Tree High School, \$300,000.

**HOUSTON**—City plans stadium, \$6,000,000.

**HUNTSVILLE**—Walker County plans 32-bed new Central Hospital, \$370,000.

**KINGSVILLE**—Texas College of Arts and Industries, E. N. Jones, Pres., has preliminary sketches in progress for constructing a combination administration and library building, \$1,000,000.

**LA MARQUE**—Galveston County plans Mainland Hospital, \$1,000,000.

**LONGVIEW**—Gregg County plans hospital, \$600,000.

**ODESSA**—Ector County Independent School District, Odessa, plans eight classroom addition to kindergarten school building, \$250,000.

**ODESSA**—Ector County Independent School District has plans for new junior high school, includes 17 classrooms, library, home economics, general science, woodwork, band, music room, art, boys and girls council, general administrative offices, combination auditorium gymnasium, \$1,435,354.

**RICHARDSON**—Richardson Public School District plans school, \$150,000.

**SEYMOUR**—Seymour Independent School District plans school and repairs and remodeling high school, \$250,000.

**TAFT**—Civic and Service Clubs of Taft interested in erection of a 25-bed hospital, \$250,000; plan bond election.

### VIRGINIA

**FAIRFAX**—Fairfax County School Board asked the Virginia General Assembly to appropriate a minimum of \$25,000,000 for school

construction purposes.

**FARMVILLE**—State has allocated \$65,000 to start development of a State Park for wetlands at Prince Edward Lake, near Farmville; appropriation is part of a development program now in progress, \$195,000.

**GLOUCESTER**—Gloucester County School Board plans bond election on \$750,000 bond issue for school building program.

**LYNCHBURG**—Lynchburg State Colony, plans personnel building and 3 low grade patients' buildings at proposed new Epileptic Colony, an addition to present Lynchburg State Colony; cost of the work to be advertised for bids is approximately \$1,702,363, not including utilities.

**RIANOKE**—Roanoke County Board of Supervisors, plans eight classroom addition to Conehurst Elementary School, \$225,000.

## Contract Stage

### ALABAMA

**BIRMINGHAM**—City Board of Education let contract to Lindstrom and Pattillo, \$152,380 for Patterson Colored School.

**ETHELIA**—City Board of Education let contract to Jones and Hardy, Montevallo, \$322,994 for additions and alterations to two schools.

### ARKANSAS

**FORT SMITH**—Fort Smith School Board, let contract to Bailey and Northum, Fort Smith, \$186,681, for school.

**LITTLE ROCK**—State Department of Education let contract to Baldwin Company, Little Rock, \$223,124, for office building.

**MENA**—Polk County received low bid from Texarkana Construction Co., 217 P. & M. Bldg., Texarkana at \$274,000 for 36-bed hospital.

### DISTRICT OF COLUMBIA

**WASHINGTON**—Public Buildings Administration received low bid from John McShain, Inc., 17th & Spring Garden, Philadelphia, Pa., at \$21,572,000 for General Accounting Office, G to H Sts., 4th to 5th Sts., N. W., Westinghouse Electric Corp., Elevator Division, Jersey City, N. J., low at \$619,815 for escalators, Westinghouse Electric Corp., Elevator Division, Jersey City, N. J., at \$705,184 for elevators.

**WASHINGTON**—U. S. Engineer Office received low bid from F. H. Martell Co., 1023 20th N. W., Washington, D. C., at \$215,600 for construction of theater at Walter Reed General Hospital.

**WASHINGTON**—District Commissioners, District Bldg., let contract to E. L. Daniels, 2112 N. Quincy St., Arlington, Va., \$647,497, for 24 classrooms for Walker-Jones Elementary School at I and L Sts.

### FLORIDA

**DADE COUNTY**—South Florida Children's Hospital, Miami, let contract to John B. Orr, 455 N. W. 54th St., Miami at \$647,000 for children's hospital.

**FORT PIERCE**—Board of Education let contract to Henry A. Ivey Co., Atlanta, \$167,985 for Fort Pierce Elementary School.

**GAINESVILLE**—Board of Control, Orlando, let contract to C & R Construction Co., Tallahassee, \$1,966,000 for men's dormitories at University of Florida.

**GREEN COVE SPRINGS**—Navy Department, Naval Base, S. C., received low bid from Billyer & Loran, P. O. Box 361, Jacksonville at \$281,000 for moorings for A F D B 3 Dry Docks.

**GREEN COVE SPRINGS**—Navy Department let contract to Laris Painting, Inc., at \$297,829 for overhauling and inactivating floating dry docks, Naval Station.

**MIAMI**—City Commission received low bid of \$1,089,493 from Caldwell-Reed Construction Co., Inc., 340 S. E. 24th St., Fort Lauderdale for library.

**WHITE SPRINGS**—Stephen Foster Memorial Commission let contract to Tempin's, Inc., Lakeland at \$195,061 for Stephen Foster Memorial Museum and Service Building.

### GEORGIA

**MARIETTA**—City Hospital Authority let contract to Van Winkle & Co., Whitehead Bldg., Atlanta at \$577,628 for Kennestone Hospital.

**SAVANNAH**—Board of Education let contract to General Construction Co., Columbia, S. C., \$694,885, for negro high school.

### LOUISIANA

**BATON ROUGE**—Recreation and Park Commission of East Baton Rouge Parish, let contract to J. P. Ewin, Inc., Box 361, Mobile, Ala., at \$366,917 for concrete structural and grading work for Municipal Stadium.

**COVINGTON**—St. Paul College let contract to Dye and Mullings, Columbia, Miss., \$249,734 for classroom building.

**METairie**—Roman Catholic Congregation of St. Christopher Martyr received low bid from O'Connor-Oakes Co., 542 Second Street, Gretna, \$177,459 for Parochial School.

**NEW ORLEANS**—Wolfe, Bernard & de la Vergne, Architects, Pere Marquette Bldg., New Orleans, received low bid from Perrellat-Rickey Construction Co., 1530 S. Rendon St., New Orleans, \$383,381, for parochial school and gymnasium auditorium.

**TRANSYLVANIA**—East Carroll Parish School Board let contract to Frank Masling and Son, P. O. Box 1292, Monroe, \$176,889, for Transylvania School.

**VILLE PLATTE**—Evangeline Parish School Board sold \$556,000 bond issue for new construction on school plants.

### MISSISSIPPI

**COLUMBIA**—Marion County let contract to M. I. Reed Construction Co., 162 Millsaps Ave., Jackson at \$466,483 for Marion County General Hospital.

**JACKSON**—Hinds County Board of Education received low bid from O & W Construction Co., 322 Cotton Exchange Bldg., Memphis, Tenn., \$194,719 for addition to Forest Hill High School.

**JACKSON**—Board of Supervisors of Hinds County let contract to M. T. Reed Construction Co., 162 Millsaps Ave., Jackson at \$214,745 for football stadium, N. State and Woodrow Wilson.

### NORTH CAROLINA

**BOILING SPRINGS**—Gardner-Webb College let contract to Hickory Construction Co., Hickory, \$159,114 for boys dormitory.

**FARMVILLE**—Pitt County Board of Education let contract to P. S. West Construction Co., Inc., Statesboro, \$167,134, for Farmville Negro High School.

**GASTONIA**—Gastonia City School Board, let contract to Robert H. Pinnix, Gastonia, \$250,476 for Arlington Junior High School.

**WHITEVILLE**—Columbus County sold \$350,000 bonds for school improvements.

**GREENVILLE**—Pitt County Commissioners let contract to McKoy Helgeson Co., Greenville, S. C., at \$829,000 for 120-bed hospital.

### OKLAHOMA

**NORMAN**—University of Oklahoma let contract to Harmon Construction Co., Oklahoma City, \$979,000 for additions and alterations to stadium.

**LANGSTON**—Logan County Board of Regents, for Oklahoma A & M Colleges, State Capitol Bldg., Oklahoma City, received low bid from Denney Construction Co., 514 W. Noble, Oklahoma City, \$181,744, for auditorium, Langston University.

**LAWN**—Comanche County Commissioners sold \$650,000 hospital bond issue.

### SOUTH CAROLINA

**GEORGETOWN**—Board of Trustees of Memorial Hospital, let contract to Southern States Construction Co., Columbia, S. C., at \$379,944 for Georgetown County Memorial Hospital.

### TENNESSEE

**CHATTANOOGA**—Tennessee Valley Authority, Knoxville, let contract to L. B. Jackson & Co., Asheville, N. C., for garage and warehouse, \$250,000.

**CHATTANOOGA**—Hamilton County Board of Education let contract to Verhey Construction Co., 801 Bluff, Chattanooga, \$218,490 for Second District School.

### TEXAS

**TEXAS**—Board of Education let contract to LeBlanc, Inc., \$222,882 for proposed new Seabrook Elementary and Junior High School; \$119,032 for new Kemah Elementary School and \$106,822 for new League City Elementary School.

**BONHAM**—Army Corps of Engineers, District Engineer, Tulsa, Okla., received low bid from J. J. Frick, 888 E. Harter, Hines Bldg., Dallas at \$432,005 for Veterans Administration Hospital; Westinghouse Electric Corp., Elevator Division, 1614 Canton St., Dallas, low at \$146,400 on elevators.

**DALLAS**—Dallas Independent School District let contract to T. C. Bateson Construction Co., 622 Irwin-Kessler Bldg., Dallas, \$478,832 for addition to Clinton P. Russell Elementary School building, Beckley and McVey Avenue.

**DEL RIO**—Del Rio Independent School District let contract to J. C. Worcester, 903

(Continued on page 38)



## When You Need Suction Hose You Really Need It!

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# Equipment and Material Makers' News

## New Model Lull Shovel loader



Model 3-A Shovel loader

The new Model 3-A Shovel loader for mounting on the Case VAI tractor is announced by the Lull Manufacturing Co., 3612 East 44th Street, Minneapolis 6, Minn.

Outstanding features of the new Model 3-A include automatic "scooping action," speed second or slow dump, and the unique design which keeps the load in balance and free from spillage after the bucket is filled.

The loader has a maximum lifting capacity of 1800 pounds and can be equipped with either a  $\frac{3}{4}$  cubic yard material bucket or a  $\frac{3}{4}$  cubic yard snow bucket.

## General Excavator Announces New Models 310, 312 and 315

The General Excavator Company, of Marion, Ohio, announces the new General models 310, 312, and model 315 Mobilcrane. These are completely new  $\frac{3}{4}$  cubic yard excavators and material handlers that incorporate in their basic design many features that are usually considered as "extras."

The Model 310 is a crawler mounted shovel, dragline, clamshell, crane and hoe. All the basic motions are controlled by air. Three modern engineering features make General air control successful. Air tube clutches apply metered air power with an unusual smoothness to the working parts.

Special air seals of General design convey air pressure through the end of the hoist drum shaft to the cylinders controlling the hoisting clutches. A special coupling takes air pressure down through the center travel shaft to the steering clutches and brakes, eliminating binding and twisting of air pipes. An "extra" that is standard on the Model 310 is its independent travel. A specially designed heavy duty transmission provides two speeds forward, and two in reverse.

The worm driven boom hoist unit is independent of all other motions for all types of service except shovel. On machines equipped for shovel service, where independent boom hoist is not needed, the clutch which raises the boom unit also serves as the retract clutch. The boom hoist worm is carried in anti-friction bearings. Four hook type swing



New General Shovel

rollers of large diameter turn between flanges on the roller path, stabilizing the superstructure.

The Model 312 is mounted on a truck type chassis, and is available as shovel, crane, clamshell, and hoe. With exception of the travel mechanism on the superstructure, the same modern features are included on the Model 312 as on the 310. The chassis is strongly built, with a one-man type cab offset to the extreme left side.

Model 315 Mobilcrane, a one-engined, one-man operated machine mounted on pneumatic tired wheels, is now in production. Details will be forthcoming soon.

## Harvester Booklet Shows Four Fuel Engines

Industrial engines and equipment for their operation on gasoline, kerosene, distillate or natural gas in a wide variety of applications, are described and shown by International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill., in a new 12-page catalog (A-104-MM) covering four carburetor type engines.

Models presented are available as stripped engines or with job-determined equipment combinations up to complete power unit. Maximum working horsepower ratings range from 24 to 55 for power units complete with fan, radiator, air cleaner, governor, when operating on gasoline.

The "inside story" of International exclusive design features is told through sectional views. "Quick-read" charts reveal horsepower, torque and fuel consumption at various engine speeds for each model. Other illustrations show job-adapted units suitable for such work as pumping crude in the oil fields or water for irrigation, powering sawmills, rock crushers, cotton gin equipment, compressors, feed mills—even carnival thrill rides. Specifications and dimensions are given for each of the four engines.

## Caterpillar Report Reveals \$13,772,581 Profit in 1948

Caterpillar Tractor Co., it is revealed by L. B. Neumiller, president, in his report to the board of directors, last year, made sales totaling \$29,467,541, as compared with the \$18,159,624 for the preceding twelve months. Profit for the year was \$13,772,581, or \$7.32 per share of outstanding common stock, this being the equivalent of 6.32 cents on each dollar of sales.

Listing the sales figures by quarters, Mr. Neumiller pointed out that the percentage of profit to sales ranged from a 3.27 per cent loss in the second quarter caused by the Peoria strike to 10.40 per cent gain in the fourth quarter. Actual sales, chronologically, were \$56,953,945 in the first quarter; \$33,195,146 in the second quarter; \$57,232,924 in the third quarter, and \$56,532,326 in the fourth quarter.

Dividends paid out in 1948 totaled \$5,646,720, or \$3.00 per share of stock at the same quarterly rate that has prevailed since 1945. The remainder of \$8,125,861 was retained for use in the business.

Expenditures made during the year included \$7,437,728 for buildings, \$10,400,958 for machinery and equipment, and \$263,663 for the cost of buildings, machinery and equipment allocated to the year's operations amounted to \$3,777,800.

Expansion and modernization which has been underway for almost three years is moving ahead satisfactorily. The program requires rearrangement of most of the older factory areas in addition to the new construction. This shift was about one-quarter finished in 1948 and is expected to be entirely completed in 1949.

Caterpillar employees at the end of 1948 totaled 22,790, as compared with the 21,698 at the close of 1947. Despite a loss of five weeks' wages, due to the stoppage of production at the Peoria plant, average annual earnings of employees on the hourly payroll, not including supervisory employees, reached an all-time peak of \$2,940. In 1947 the figure was \$2,514. Not included in the earnings are group insurance, retirement plan, unemployment insurance and federal old-age benefits which cost the company \$3,446,471 in 1948, \$3,216,283 in 1947.

The Caterpillar dealers' organization was strengthened by reorganization of some dealerships and the replacement of a few others to obtain more capable and vigorous management. Sales staffs and training programs were improved. Many dealers built new headquarters or added new branches; others modernized. In fact, Mr. Neumiller observed, "dealer expenditures for expansion of their facilities were in line with the company's own substantial investment in new factory buildings, machinery and equipment."

The 1949 sales outlook is encouraging for the company's longer line of products, he said, at the same time listing the major users which include agriculture, construction, logging, mining, petroleum, transportation and utilities. About 90 manufacturers of excavators, compressors, oil field equipment and locomotives using diesel engines for power purchased all the Caterpillar engines that could be allocated to them in 1948. These are larger engines and demand the entry into an entirely new and additional market.

Sales to the federal government last year were negligible and are not expected to be a major factor in Caterpillar business this year. Sales of Caterpillar products above contractors at an excellent pace and the outlook for 1949 is favorable. The demand for crawler tractors is still at a high level from practically every part of the world. No serious slackening in total volume of new orders for tractors or motor graders is seen. The supply of other products is sufficiently balanced with demand to permit the company to abandon its allocation controls on their distribution.

## Dahlberg Selected Director

Bror G. Dahlberg, chairman of the board of Celotex Corp., Chicago, has been elected chairman of the board of governors of the Building Officials' Foundation, succeeding the retiring chairman, Joseph P. Wolff, commissioner of the department of buildings and safety engineering, the City of Detroit. At the same time the foundation announced the election of Harold Boachenstein, president of Owens Corning Fiberglass Corporation, Toledo, and Henry Bohnsack, president of the International Steel Company, Evansville, Indiana, to the board of governors.



B. G. Dahlberg of the International Steel Company, Evansville, Indiana, to the board of governors.

The newly elected executive committee of the foundation, in addition to Mr. Dahlberg, consists of J. H. Thornley, president, the Western Foundation Co., New York; Loring Washburn, president of S. H. Pomeroy Co., New York; Albert H. Baum, commissioner of buildings, St. Louis; and Fred C. Bergeson, building inspector, Rock Island. The foundation was established three years ago by the Building Officials Conference of America, Inc., in affiliation with industry to encourage building code reform and standardization on a nationwide basis.

## Dravo Counterflo Bulletin

Dravo Corp., Pittsburgh, has announced publication of a new 12-page bulletin (No. 523) describing the Dravo "Counterflo" forced air space heater. Available in standard output capacities from 400,000 to 2,000,000 Btu's per hour, the warm air heater is direct fired either by oil or gas and can be supplied with combination burners for quick conversion from one fuel to the other.

The new bulletin emphasizes the heater's "five-function" versatility. In addition to its primary use for comfort heating, it also can provide year round ventilating, process drying, tempering makeup air and heat curing. Long service life is assured by the heater's stainless steel combustion chamber. High efficiency (80 to 85%) is achieved by four-pass counter-flow combustion combined with a warm air recirculation principle.

It is described as being especially suitable and economical for heating large structures without ductwork but also may be employed as a central heating plant. Only electric power line fuel piping and vent stack are needed to install the heater.

Copies of Bulletin 523 and further information can be obtained by writing Dravo Corporation, Heating Section, Dravo Building, Pittsburgh 22, Pa.

## New Nordberg Engine

Nordberg Manufacturing Co., Milwaukee, Wis., announces a new 10 horsepower diesel engine. Known as Type 4F8-1, this new engine is an extra heavy duty vertical type, four-cycle, single cylinder, mechanical injection engine. It has a 4 1/2 inch bore and a 5 1/2 inch stroke and is conservatively rated at 10 h.p. at 1200 r.p.m. and 15 h.p. at 1800 r.p.m. Production is expected in the near future of two and three cylinder models of the same bore and stroke with proportionately higher horsepower ratings. The 4F8-1 engine is now available for immediate delivery.

(More on page 56)



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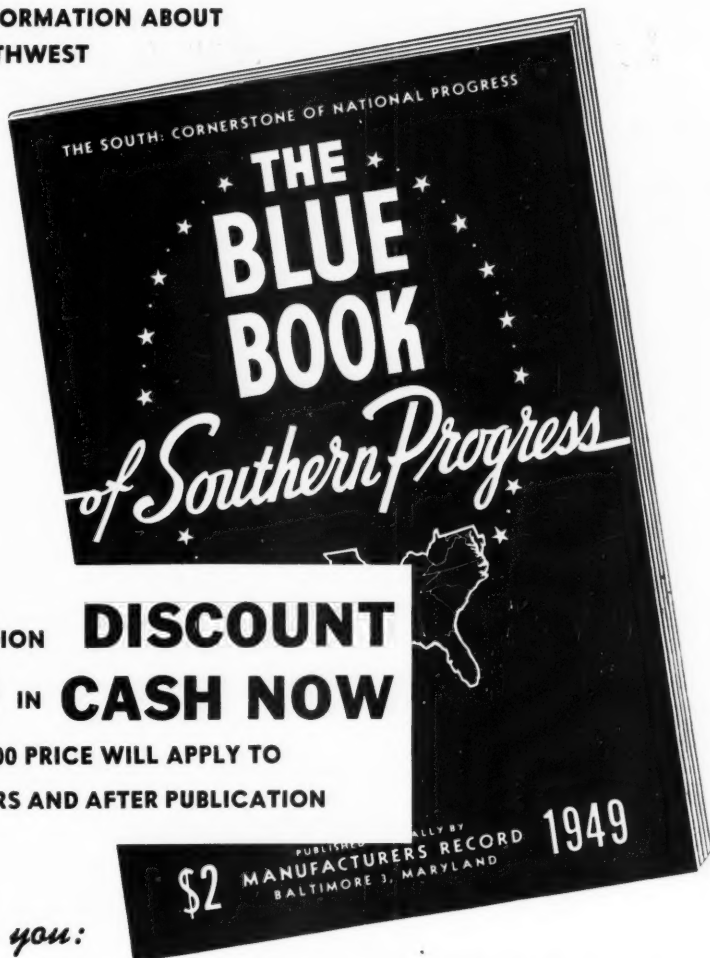
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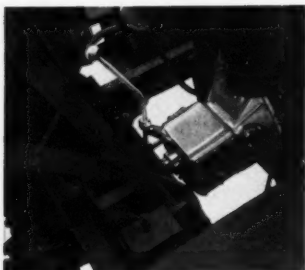
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# Equipment and Material Makers' News

## Pulvi-Mixer Equipped With Selective Speed Transmission



### Seaman Selective Transmission

Pulvi-Mixers, made by Seaman Motors, Inc., 305 North 25th Street, Milwaukee 3, Wis., are now being equipped with a selective speed transmission which provides a variation in rotor speeds best adapted to the job requirements. Variable rotor speeds increase the efficiency of the Pulvi-Mixer and also improve the quality of the work accomplished.

The addition of the selective speed transmission permits pulverization to a much greater depth; the mixing of aggregate of much larger diameter; better pulverization of stiffer clays and more thorough blending of stonier soils. In addition, there is a pronounced saving in the breakage and normal wear and tear on the entire unit as well as fuel savings on many jobs.

The selective speed transmission is now standard on all motorized models and extends the use of the Pulvi-Mixer to many types of construction activities that were heretofore impractical—such as deep treatment of sub-bases, doctoring of frost bolls, and the large scale construction of macadam roads and airport bases.

## New Holland Produces Large Impact Crusher

New Holland Manufacturing Co., Mountville, Pa., has begun quantity production of the world's largest impact stone crusher. V. R. Despard, Jr., general manager, said the new crusher, the Model 5050 double impeller breaker, has been successfully tested for many months.

Built around the same principles as the company's Model 3020, the 5050 can take stone up to 50 inches and reduce it to aggregate in one operation. The machine weighs nearly 54 tons and stands 14 feet high, and is described as the largest crusher ever made to crush stone by impact in suspension. However, it is only a fraction of the weight and size of conventional machines now doing the job. The 5050 has done in tests, Despard said, taking any stone fitting a two yard shovel, the 5050 will produce aggregate in two sizes, minus eight inches and minus three and one-half inches. Mounted on 18 inch I beam skids, the breaker is 14 feet long and 9 feet, 6 inches wide.

### Largest Impact Breaker



## Link-Belt Announces HS High Speed Buckets

Link-Belt Co., 307 N. Michigan Ave., Chicago 1, Ill., announces a new, high-speed elevator bucket embodying all the essential basic principles for high-speed operation to attain maximum capacities in handling free-flowing materials, especially grain products.

The design combines capacity, durability, low operating cost, and strength with light weight. The new bucket is particularly recommended for handling grain, soft feeds, and other lightweight, fluffy, granular, or powdered fine free-flowing materials which are not excessively abrasive.

Buckets may be mounted on elevator belt at intervals or continuously, depending upon the capacities required. Old-style buckets on existing elevators may now be replaced with the new "HS" high-speed bucket, to attain a substantial increase in handling capacity.

A new 8-page illustrated book No. 2299 has been published and is now available for distribution, giving necessary particulars on the sizes available. These range all the way from 3 x 3 in. to 24 x 7 in. The information in new book includes dimensions; weights; list prices; cubical contents; table of standard punching for belts; belt speeds; capacity factors; and specific examples for figuring both the capacity of elevator legs in bushels per hour and the elevator horsepower.

## P. & H. Issues Bulletin On 1-Yard Dragline

A new 16-page bulletin (X-11-1) covering the P.&H. Model 455-A, has just been completed and is now available. With pages of striking color, the booklet describes and illustrates all the added features of this machine. The P.&H. Model 455-A is specially designed for crane, clamshell and dragline service. A copy of the bulletin may be obtained by writing Haruschfefer Corp., Excavator Division, 4400 W. National Ave., Milwaukee 14, Wis. Ask for Bulletin X-11-1.

## New Gar Wood Agent

Gar Wood Industries, Inc., Wayne, Mich., announces appointment of Whiteco Truck Equipment Co., 930 Mason St., Louisville, Ky., as authorized distributor for Gar Wood hydraulic hoists, dump bodies, winches, cranes, truck tanks and load packer refuse collection units.

William T. Cochran and Bertram F. Whitbread, owners of Whiteco Truck Equipment Co., have considerable experience with Gar Wood equipment. For a good many years they were employed by Gar Wood Industries, Inc., at the company's plant in Highland Park, Mich.

Whiteco Truck Equipment Co. has a complete stock of service parts for all Gar Wood Wayne Division products. With experienced help and a complete, modern Service Department, they invite you to bring your service problems to them. They also have a large number of Gar Wood products in stock ready for immediate delivery.

## Screening Plant Bulletin

A bulletin (PSP-1) announcing a new portable screening plant for gravel or coal has been issued by Iowa Manufacturing Co., Cedar Rapids, Iowa. The plant consists of a special horizontal vibrating screen, three folding type channel frame conveyors and a diesel power unit all mounted on a pneumatically-tired steel truck. Power required is 50-60 h.p. with clutch and power take-off set at 1200 r.p.m., full load.

The plants are recommended for use in aggregate producing or coal operations in which no crushing is necessary. They can also be used with portable crushing plants where additional screening is needed to meet rigid specifications and are especially suitable for producing two or three sizes of agricultural limestone, screening as much as 100 to 200 tons per hour of the combined sizes. They can be fed either gravel or rock from pit, quarry or stockpile, or any type of coal.

Material can be sized to specifications (gravel into oversize, pea gravel and fines and coal into mine run, stoker and slack) and can be loaded quickly into trucks, bins or stockpile. The plants are completely portable and adaptable to most any screening and loading set-up. They will produce the finished sizes of aggregate or coal on one job, be moved over the roads and set up for another job almost immediately.

## Koehring Appoints Mitchell North Carolina Agent

Recently appointed North Carolina distributor for the Koehring Co., of Milwaukee, Wis., the Mitchell Distributing Co., Spruce Pine and Raleigh, N. C., will handle the complete Koehring line of heavy-duty construction equipment along with products of the three Koehring subsidiaries, C. S. Johnson, Kwik-Mix and Parsons.

Covering the entire state of North Carolina, Mitchell's complete construction equipment line will include Koehring excavators, cranes, draglines, Dumpsters, pavers, finishers, Mud Jacks, construction mixers; Johnson aggregate and cement plants, batchers, bins, storage silos, clamshell buckets; Parsons range of crawler and rubber-tired trenchers; and complete line of Kwik-Mix concrete, bituminous, and plaster-mortar mixers as well as the power wheelbarrow called the Moto-Bug.

## Gar Wood Directors Name E. F. Fisher President

The Board of Directors has elected Edward F. Fisher president of Gar Wood Industries, Inc., Wayne, Mich.

Mr. Fisher comes to Gar Wood Industries after four years of retirement following a highly successful career in the automotive industry. The Fisher brothers, it will be recalled, founded Fisher Body, which is now a division of the General Motors Corp.

Mr. Fisher will have an organization made up of four divisions located in Wayne, Mich.; Findlay, Ohio; Minneapolis, Minn.; and Richmond, Calif., the products of which are hydraulic hoists, dump bodies, winches, cranes, load packers, truck tanks, ditchers, spreaders, firecrackers, power shovels, tractor equipment and road patrols. Distribution of these products is handled nationally by an organization of factory branches, distributors and dealers located in every principal city of the United States.

## LeTourneau Adds Equipment

LeTourneau, Inc., has announced the addition of three new tools to its line of earthmoving and materials handling equipment—the E-35 Tournado, the E-40 Tournado, and the E-25 Carryall Scraper. The E-35 Tournado is a 27 yard or 35-ton capacity unit which will travel at speeds up to 30 m.p.h. It is powered by a 240 h.p. two-wheel prime mover, and has a multiple disc 4-wheel air brakes which provide 5,135 square inches of braking surface. The E-40 Tournado is also powered by a 240 h.p. two-wheel prime mover. It has a 41 cubic yard capacity and a rear dump which is multi-cable controlled by an electric motor which tips the body beyond vertical position for fast dumping. Drive wheels are up front where they can pull the rig forward, and has an emergency. Four wheel disc type air brakes with 5,135 square inches of braking area give safe control. The E-25 Carryall Scraper is powered by the 240 h.p. two-wheel prime mover. It possesses all the design features associated with the new line of LeTourneau equipment—finger-tip electric control, positive power steer, Tournaumatic Differential, more flotation and sure-footed traction.



Above—Heil engine mounted cable dozer for Oliver Cletrac tractors shown in action building roads and stripping coal overburden in West Virginia. Central Penn Co. is owner.

(More on page 58)



## CEMENT gives you more for your money!

What has happened to America's cost of living since 1935? It has soared 75.5%—almost to the top of the picture-chart above. But look at the price of cement—held to a gain of only 44.2% in same period.

Check the figures yourself. They're based on an official report from the U. S. Bureau of Labor Statistics as of November, 1948.

Any way you look at it...any way you figure it...cement is *cheap*. Cement gives you more for your money.

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 Chattanooga Bank Building • • Chattanooga 2, Tenn.

*Portland — High Early Strength — Air Entraining — Masonry*

# Equipment and Material Makers' News

## HM Payloader Described

A new catalog has been prepared by Frank G. Hough Co., Libertyville, Ill., covering the unique, new 4-wheel drive Model HM Payloader. This literature contains complete specifications on this big 1½ cubic yard tractor shovel and numerous action views from a variety of jobs.

Unusual features and advantages of this big tractor shovel are also illustrated—hydraulic bucket control, several speeds in either direction, fast forward reverse control, power boosted steering, controlled dumping, operator visibility, ground gripping traction provided by large earth mover tires and four wheel drive.

The 1½-yard Model HM is the newest of the Payloader line which also includes the 1¼-yard Model HL, the ¾-yard Model HF and the 10½ cubic foot Model HA.

## Marlow Pump Sales Manager

Appointment of Andre S. Rubin, Jr., as sales manager has just been announced by Marlow Pumps, Ridgewood, N. J. In this capacity, Mr. Rubin will actively direct sales and sales promotion for the well-known line of construction pumps manufactured by this company. Mr. Rubin has been affiliated with Marlow Pumps since 1942 when he became assistant to the late A. S. Marlow, Sr., founder of the organization. Active since that time in the development of the Marlow line of self-priming centrifugal pumps for construction, Mr. Rubin is widely known in the construction industry. He was graduated from Rensselaer Polytechnic Institute in 1934.

## Mall Model 10 Saw

The Mall Tool Co., 7740 S. Chicago Ave., Chicago 19, Ill., announces a new lightweight gasoline-engine chain saw for one or two man use. Its lightweight die-cast magnesium construction makes it easy for one man to carry as well as make horizontal, vertical or any angle cuts. Indexes to any desired angle for felling or bucking. Two gear ratios, which are easily interchanged—provide a slow speed for cutting big trees, a high speed for cutting small ones. The round nose bucking bar makes it possible to start a cut with the tip of the round end and also permits felling and bucking trees with a diameter twice the bar's length, by cutting one-half from one side and the other half from the other side.

## Clutch-Type Power Pump

A new, compact, lightweight, hydraulic, clutch-type power pump, known as the Hydra-Clutch pump, has been designed and put on the market. The pump is designed for those applications where hydraulic power is desired for periodic short lengths of time. When the power is required, the clutch is engaged, transmitting the power to the application. One control engages the clutch, disengages the clutch, and operates the slide valve. The pump contains an overload relief valve.

## Diesel Locomotive Cranes

A new catalog (No. 600 L 5) devoted to its 25-ton diesel locomotive crane is now available from the American Hoist & Derrick Co., St. Paul 1, Minn.

The catalog illustrates the crane in action in magnet, bucket, hook and pulpmoored work. Many photographs of the important mechanical features are also included.

## Hyster Truck Distributor

New distributor of Hyster lift trucks, straddle trucks and mobile cranes in the vicinity of Baltimore, Md., is the McCall Boykin Co., Inc., at Calvert and 20th Streets in Baltimore, according to an announcement from C. H. Collier, Jr., head of eastern division truck sales for the Hyster Company. Headed by W. S. Boykin, president, and John M. McCall, vice-president, the company will handle Hyster sales and service in all of Maryland except Washington, Allegheny and Garrett counties; in Kent and Sussex counties of Delaware; in Accomac and Northampton counties of Virginia; and in the District of Columbia.

## La Crosse Tilt Trailers

Two tilting trailers designed for hauling tractors, mixers, compressors, and similar bulky loads, have been announced by La Crosse Trailer Corp., La Crosse, Wis. The manufacturer reports both trailers can easily be loaded or unloaded by one man without skids or blocks; and can be used behind any standard ½ to 1 ton truck equipped with standard pintle hook.

## Reciprocating Feeder Book

A new eight-page bulletin describing Cedarapids apron-type and reciprocating type feeder has just been published by Iowa Manufacturing Co., Cedar Rapids, Iowa. This booklet gives detailed descriptions and specifications on the complete line of Cedarapids feeders, graphically showing their operation and use in typical installation photos and diagrams.

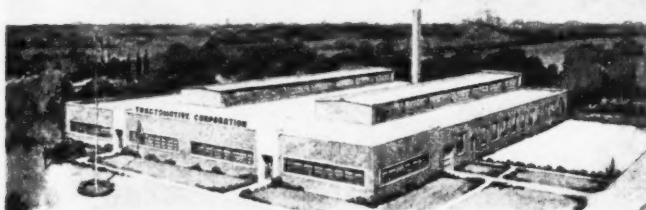
Feeders for use with all types of material handling and bituminous mixing plants are included. Apron type feeders for use with crushers, or under bins to feed on to a conveyor, in a range of sizes to handle any size feed, including big rock. Some will handle anything fed by large shovels, draglines or dump-type units from a ramp.

For use with bituminous mixing plants, there are apron type feeders which control the proportions of aggregates and assure steady operation of the entire plant, special two or three compartment hoppers with feeders and special three compartment charging hoppers with three individual feeders. Also described in detail are: A ground level heavy duty apron type feeder for use where raw material is handled by truck, dumper or scraper.

## Tractomotive Moves Plant

Tractomotive Corp., formerly of Findlay, Ohio, has moved to its new plant at Deerfield, Ill., according to V. M. Dobson, president. Tractomotive manufactures front end shovels and loaders for Allis-Chalmers crawler and wheel type tractors in addition to other road building equipment. All products are sold exclusively through Allis-Chalmers industrial dealers.

According to Mr. Dobson, the new plant is located on 26 acres of land 40 miles north of Chicago and is a brick and steel structure with a monitor type roof. It has 40,000 square feet of floor space. A switch track directly to the plant off the main line of the Chicago, Milwaukee, St. Paul and Pacific Railroad plus trucking slips close to I. S. highway 41 and highway 42A provide adequate shipping facilities.



New Tractomotive Plant at Deerfield, Ill.

## Heltzel Batching Plants



Three types of batching plants are described in Bulletin J-37 being distributed by the Heltzel Steel Form & Iron Co., Warren, Ohio, which has included in this publication all recent improvements in central mix, transit mix and concrete products plants and accessory equipment. Data, specifications and illustrations are arranged for easy interpretation and to present useful ideas to operators. The plants described range in capacity from 100 to 400 tons and in most cases are combination plants with both aggregate and cement compartments.

## Binks Compressor Units

Six new models of two stage air compressors have been added to the spray painting and finishing equipment line of the Binks Manufacturing Co., Chicago, Ill. The new models are designed to supply compressed air for spray painting as well as air at higher pressures than those normally used for spray finishing. They are built for 200 pound working pressure. Tanks are tested to 300 pounds. The standard pressure setting is 100 to 200 lbs. Special settings are also available. Displacement of the new models ranges from 7.13 to 40 cubic feet per minute. They are powered by motors ranging from 1½ to 10 horse-power.

## PUBLIC BUILDING

(Continued from page 52)

American Hospital and Life Bldg., San Antonio, \$161,913 for Cady Wardlaw Memorial gymnasium.

**GARLAND** — Garland Independent School District needed bid from Sachs and Stevens, Wholesale Merchants Bldg., Dallas, \$180,900 for elementary school.

**HOUSTON** — Houston Independent School District let contract to W. S. Bellows Construction Corp., \$584,000 for dormitory, Rice Institute.

**HOUSTON** — Houston Independent School District sold \$9,196,000 bond issue for school improvements.

**PORT LAVACA** — Calhoun County Independent School District let contract to F. B. Gumm, Port Lavaca, \$152,980 for additional school facilities.

**SNYDER** — Snyder Independent School District let contract to Dunlap Construction Co., P. O. Box 1353, Abilene, \$193,500 for 15 classrooms and cafeteria.

## VIRGINIA

**ALEXANDRIA** — Board of Education let contract to Eugene Shimpson & Brothers, Alexandria, \$618,900, for addition to Madison Street High School.

**ALEXANDRIA** — Board of Education let contract to Cowles Construction Co., Alexandria, \$195,567, for addition to George Mason Elementary School.

**BURKEVILLE**—State Department of Health, Richmond, received low bid of \$1,192,000 from Virginia Engineering Co., Melson Bldg., Newport News, for rebuilding Piedmont Tuberculosis sanatorium for Negroes.

**HAMPTON**—Elizabeth City County Board of Education let contract to Thornton Construction Co., Richmond, \$210,352, for addition and alterations to Buckroe School.

**RICHMOND**—City let contract to Howard-Mitchell Construction Co., 10 W. Cary St., Richmond at \$162,484 for alterations to Main Street Office Building, Twelfth and Main Sts.

#### WEST VIRGINIA

**CHARLESTON**—Kanawha County let contract to Mayer Brothers, Charleston at \$249,400 for remodeling County Courthouse.

## Houston Faces Favorable Construction Prospects

(Continued from page 49)

1948 was in multi-unit apartments. The largest single project is Town and Country apartments, consisting of 488 units. It is being constructed in the southern portion of Houston by H. M. Cohen and M. A. Silverman at a cost of \$5,000,000. William G. Farrington's Parkwood Terrace in the same area has 300 units and is costing an estimated \$3,000,000. Also in the same area is the Finger Interests' Pickwick Plaza, which has 268 units and is costing \$2,000,000.

Other large apartment projects are the Arrowhead Apartments, 212 units; Montclair Apartments, 120 units; and Fulton Village, 112 units.

The 13,000 dwelling units were built in Houston and the surrounding suburbs, including West University Place, Belaire, Galena Park, South Houston and

Meadowbrook, all a part of metropolitan Houston.

A report compiled by the Houston Chamber of Commerce revealed that construction contract awards in Harris County for residential construction totaled \$121,091,642.

These construction statistics, probably more than any other single phase of business activity, attest to Houston's continuing growth and to the confidence Houston businessmen have in the community's future.

## New Engineer Chief

(Continued from page 39)

uated in June of 1934 and remaining as instructor.

Detailed to the Army War College at Washington, he was graduated there and named executive assistant to the division engineer of the Ohio River Division at Cincinnati. In April of 1942 he was appointed division engineer of the Missouri River Division at Omaha, Nebr.

It was in October 1943 he was sent to the China-Burma-India area and made commanding officer of an advanced section of the service forces there, being responsible for construction, operation and maintenance of the Ledo Road.

Returning to the Office of the Chief of Engineers in September 1945, General Pick two months later became division engineer of the Missouri River Engineer Division.



Maj. Gen. Lewis A. Pick

A chronological list of promotions included first lieutenant July 1, 1920, the same day he was commissioned in the regular army; and immediate promotion to captain; to major, August 1, 1935; to lieutenant colonel August 18, 1940; to colonel (temporary) December 24, 1941; to brigadier general (temporary) February 21, 1944; to major general (temporary) March 22, 1945; to brigadier general (permanent) December 2, 1947 and to the permanent rank of major general on March 1, 1949.

## ON THE JOB

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with

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PORTABLE ELECTRIC SAW

## Cuts Wet or Dry

Using Diamond or Abrasive Wheels

Cuts in one cut to a depth of 5" concrete blocks, brick, structural tile, terrazzo, glass block, glazed products, sewer pipe, drain tile, light structural steel, iron and steel pipe, transite pipe, and corrugated sheeting.

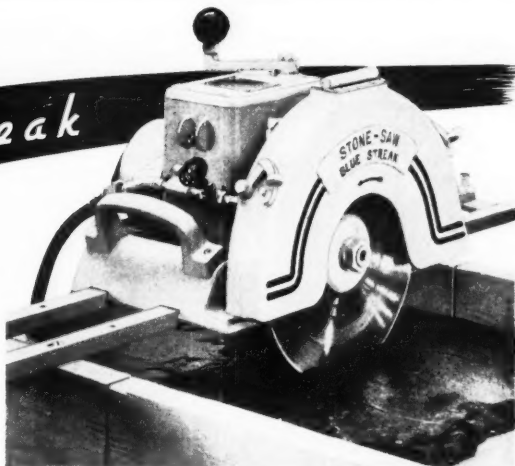
#### TYPICAL CUTTING TIMES:

8" Building Brick—12 seconds  
3" Hard Concrete Flooring—1 ft. per minute  
4" Steel Channel—30 seconds  
3" I Beam—40 seconds  
3" Cast Iron Pipe—20 seconds

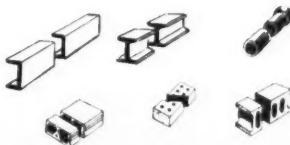


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HIGH SPEED CUTTING MACHINERY



The Stone Blue Streak Can Reduce Your Construction Cost!





## Two-Month Contract Value High

(Continued from page 11)

tion. Average cost of distribution lines constructed by borrowers of federal funds in 1948 rose 12.2 per cent to \$1,366 per mile. Estimated total loan allocations for the purpose at the end of December totaled \$1,500,000,000.

Production of clay products this year will continue the "record-breaking" rate of 1948. Structural Clay Products Institute made the forecast and said approximately 50 per cent of the current brick and tile production is available to the building industry in the new modular sizes.

The Institute had previously urged further expansion of programs for training apprentices in the building trades, observing that although more than 130,000 veterans and other young men were receiving training at the end of last year, the number of registered apprentices did not increase substantially.

The current hourly rate for bricklayers in Baltimore is \$3.00, or an increase of one-third over the rate prevailing in January of last year. This was the largest increase in rates among the seven building trades groups. The smallest was the 18.3 per cent for painters, whose scale is reported at \$1.775 per hour. Rates for carpenters are \$2.20; electricians, \$2.25; plasterers, \$2.25; plumbers, \$2.25; and laborers, \$1.25.

Construction put in place in the first

month of this year throughout the country is estimated at \$1,261,000,000 by the Department of Commerce. The figure was a nine per cent drop from the level of December and was, according to that government agency, "attributable almost wholly to seasonal factors."

Value of private construction placed was \$978,000,000, this representing a percentage drop paralleling the decline for all construction. Private non-farm residential building was estimated at \$490,000,000, or a decrease of eleven per cent below December and two per cent under the figure for the comparable month of last year.

## PUBLIC ENGINEERING

(Dams, Drainage, Waterworks, Sewers, etc.)

	February, 1949 Contracts Awarded	February, 1949 Contracts to be Awarded	Contracts Awarded First Two Months 1949
Ala. ....	\$1,101,000	899,000	\$1,546,000
Ark. ....	311,000	1,710,000	1,240,000
D. C. ....	10,000	815,000	874,000
Fla. ....	289,000	1,510,000	997,000
Ga. ....	1,137,000	545,000	2,729,000
Ky. ....	1,145,000	3,165,000	1,635,000
La. ....	2,000,000	3,000,000	2,580,000
Mo. ....	2,258,000	2,775,000	3,370,000
Miss. ....	563,000	2,160,000	2,950,000
Ne. ....	758,000	2,755,000	2,456,000
N. C. ....	719,000	957,000	2,224,000
Okla. ....	1,015,000	3,993,000	2,312,000
S. C. ....	167,000	720,000	1,342,000
Tenn. ....	476,000	5,845,000	1,042,000
Tex. ....	10,060,000	28,987,000	16,794,000
Va. ....	708,000	1,600,000	1,238,000
W. Va. ....	60,000	.....	85,000
<b>TOTAL</b>	<b>\$22,830,000</b>	<b>\$38,786,000</b>	<b>\$55,843,000</b>

## INDUSTRIAL

(Including Private Utilities)

	February, 1949 Contracts Awarded	February, 1949 Contracts to be Awarded	Contracts Awarded First Two Months 1949
Ala. ....	\$2,020,000	\$70,100,000	\$2,145,000
Ark. ....	25,000	1,800,000	100,000
D. C. ....	.....	3,868,000	.....
Fla. ....	3,695,000	300,000	4,056,000
Ga. ....	1,060,000	24,760,000	1,820,000
Ky. ....	.....	2,430,000	338,000
La. ....	4,367,000	10,238,000	6,631,000
Mo. ....	2,626,000	10,850,000	5,102,000
Miss. ....	135,000	920,000	288,000
Ne. ....	412,000	550,000	1,181,000
N. C. ....	816,000	200,000	10,697,000
Okla. ....	491,000	550,000	1,946,000
S. C. ....	926,000	200,000	2,016,000
Tenn. ....	1,901,000	8,870,000	3,680,000
Tex. ....	3,274,000	4,861,000	21,383,000
Va. ....	500,000	950,000	875,000
W. Va. ....	175,000	11,100,000	175,000
<b>TOTAL</b>	<b>\$21,968,000</b>	<b>\$152,547,000</b>	<b>\$71,439,000</b>

## PUBLIC BUILDING

(City, County, State, Federal; Hospitals; Schools)

	February, 1949 Contracts Awarded	February, 1949 Contracts to be Awarded	Contracts Awarded First Two Months 1949
Ala. ....	\$1,167,000	\$2,630,000	\$5,198,000
Ark. ....	1,238,000	2,025,000	2,362,000
D. C. ....	23,681,000	1,070,000	24,372,000
Fla. ....	6,370,000	5,655,000	10,950,000
Ga. ....	1,991,000	1,463,000	3,948,000
Ky. ....	1,173,000	1,490,000	900,000
La. ....	3,496,000	12,450,000	5,628,000
Mo. ....	940,000	22,605,000	2,761,000
Miss. ....	2,630,000	5,839,000	7,509,000
Ne. ....	1,150,000	1,490,000	2,337,000
N. C. ....	3,393,000	4,540,000	10,611,000
Okla. ....	2,727,000	3,600,000	7,485,000
S. C. ....	245,000	1,530,000	2,330,000
Tenn. ....	1,052,000	3,094,000	5,120,000
Tex. ....	10,282,000	28,847,000	20,724,000
Va. ....	3,281,000	4,345,000	5,155,000
W. Va. ....	511,000	15,000	511,000
<b>TOTAL</b>	<b>\$65,377,000</b>	<b>\$107,230,000</b>	<b>\$117,731,000</b>

## PRIVATE BUILDING

(Assembly, Commercial, Residential, Office)

	February, 1949 Contracts Awarded	February, 1949 Contracts to be Awarded	Contracts Awarded First Two Months 1949
Ala. ....	\$1,000,000	\$250,000	\$2,601,000
Ark. ....	211,000	470,000	1,175,000
D. C. ....	.....	10,000	275,000
Fla. ....	12,063,000	5,380,000	26,737,000
Ga. ....	1,302,000	2,070,000	7,138,000
Ky. ....	1,340,000	560,000	2,770,000
La. ....	1,821,000	3,421,000	4,527,000
Mo. ....	4,820,000	4,502,000	8,802,000
Miss. ....	428,000	1,064,000	1,018,000
Ne. ....	2,228,000	7,590,000	2,955,000
N. C. ....	1,008,000	1,680,000	4,470,000
Okla. ....	1,251,000	4,390,000	4,066,000
S. C. ....	318,000	420,000	2,069,000
Tenn. ....	3,465,000	4,515,000	5,474,000
Tex. ....	30,807,000	62,515,000	50,641,000
Va. ....	620,000	675,000	3,097,000
W. Va. ....	.....	.....	295,000
<b>TOTAL</b>	<b>\$60,301,000</b>	<b>\$89,015,000</b>	<b>\$134,984,000</b>

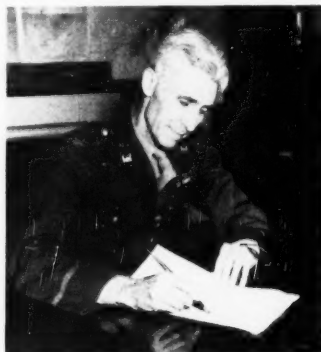
## ROADS, STREETS, BRIDGES

	February, 1949 Contracts Awarded	February, 1949 Contracts to be Awarded	Contracts Awarded First Two Months 1949
Ala. ....	\$51,000	\$810,000	.....
Ark. ....	.....	.....	84,000
D. C. ....	.....	.....	768,000
Fla. ....	303,000	530,000	1,709,000
Ga. ....	50,000	60,000	3,050,000
Ky. ....	1,237,000	2,740,000	2,790,000
La. ....	1,924,000	7,990,000	6,713,000
Mo. ....	2,037,000	3,880,000	6,546,000
Miss. ....	.....	280,000	340,000
Ne. ....	900,000	1,920,000	2,854,000
N. C. ....	2,653,000	710,000	4,960,000
Okla. ....	1,512,000	2,038,000	3,039,000
S. C. ....	774,000	910,000	3,856,000
Tenn. ....	55,000	8,000	2,790,000
Tex. ....	4,881,000	15,687,000	21,076,000
Va. ....	1,820,000	1,030,000	3,279,000
W. Va. ....	1,619,000	520,000	1,619,000
<b>TOTAL</b>	<b>\$22,905,000</b>	<b>\$39,400,000</b>	<b>\$72,926,000</b>

## Reserve Unit Activated

General orders have been received by Col. Douglas J. Page, executive, Louisiana Military District, activating the Engineer District Augmentation 4005th Organized Reserve Area Service Unit. Commanded by Col. George H. Hudson, this unit is affiliated with the District Engineer, Corps of Engineers, Foot of Prytanis St., New Orleans, La.

Colonel Hudson was born in Wilmington, Del., on June 3, 1899. In 1920, he was graduated from the University of Delaware with the degree of B.S. in civil engineering. Immediately following graduation, he was employed as an inspector by the U. S. Corps of Engineers at Wheeling, W. Va. Subsequent service included that with the Huntington, W. Va., Florence, Ala., and the New Orleans Engineer



Col. G. H. Hudson

districts. Other professional engagements were with a county highway department, private engineering practice, and with a structural steel fabricator.

Colonel Hudson served in the Army in both world wars I and II. He was commissioned as a first lieutenant, Infantry Reserve, at Plattsburgh Training Camp in 1918 and served as an instructor at the BATC, Buffalo University, in New York. Between the Wars, he was very active in the 312th Engineer reserve regiment and attended four training encampments. He also served as an enlisted man in the National Guard.

During World War II, he attained the grade of Colonel in the Corps of Engineers, and during a part of this period, he served as District Engineer in the New Orleans District.

## Charlotte Construction Soars

(Continued from page 46)

already. Among the larger rental projects begun last year were the Forest Apartments (88 units), Scotland Colony (86 units), Tryon Hills (270 units), and Oakcrest Homes (76 units). Even with all this construction there is still a shortage of housing because of the city's rapid growth in population—an estimated 140,000 now, compared with 100,899 in 1940.

Since the end of the war Charlotte city government authorities have been hard pressed to keep public services abreast with the city's growth. Expansion proj-



ects under way in the City-County school systems already total \$1,800,000—with more to come. Plans are being made now for two new elementary schools, a new junior high school, and a modern, campus-type senior high school. Public school authorities are hoping that the actual construction of the proposed new schools will begin this year.

Unbottling traffic in the business districts of the city has presented another major problem to city authorities. The crosstown boulevard—an 82-foot, four-laned thoroughfare now nearing completion—will alleviate the congestion somewhat. This traffic artery involves the expenditure of about \$2,000,000 for clearing the right-of-way, grading, and paving. Several similar projects are planned for the near future.

Water supply for the booming city has been another problem. To solve this, the city is now in the midst of expanding its water facilities to increase the rated capacity from 17,000,000 gallons per day to 24,500,000 gallons per day. This involves about \$2,000,000 in new reservoir, filter station, pump and pipeline facilities.

Thus with many projects already under way and many more in the planning stages, Charlotte building authorities are predicting a continuation of last year's building boom.

There is little doubt that the Queen City will soon be one of the great metropolitan centers of the South.

## Tampa Building Program

(Continued from page 33)

boom of the twenties.

This project, costing \$700,000, is sponsored by Paul H. Smith, president of the Paul Smith Construction Co., which is doing the construction work. The Smith firm, with its main office in Tampa and branches in other southeastern states and several foreign countries, also has underway in the Tampa area contracts totaling approximately \$1,500,000 including churches, MacDill Field Air Force base facilities, and South Florida Baptist Hospital.

The general picture is now changing from the head-long rush of a year or so ago for "anything at any price" to a steadier pace more in favor of the builder, in the opinion of Mr. Smith.

"Construction seems a bit off the immediate post-war peak, but I think it will continue at a high level for another year or two," he declared in a recent statement.

"Skilled labor is getting more plentiful and materials, with a few very notable exceptions, are in steadier supply."

"Contracts are being taken now on closer margins and a good many fly-by-night operators who saw construction as a get-rich-quick scheme immediately after the war, are being forced out by their lack of knowledge of construction. This occurred principally in the housing field."

"Labor leaders are getting a little more reasonable in their demands, which indicates that they too realize that construction is entering into a buyers' market money's worth before going ahead with where the customers will demand their building plans," Mr. Smith declared.



Gorman-Rupp pumps in action on storm sewer job in Corpus Christi, operating at 20 ft. suction lift. Jay DePuy and E. C. DePuy, contractors, are using 11 Gorman-Rupp's on this job.

## ON-THE-JOB -- Performance IS WHAT COUNTS!

When you're keeping a hole dry or holding a river back, priming speed, efficiency and dependability of your pump means everything.

Gorman-Rupp self-priming centrifugal pumps can help you complete your contracts on time and at a greater profit. They challenge any contractor's pump, size for size, to equal their all around performance.

Made in all sizes: 7M — 10M —  
15M — 20M — 30M — 40M — 90M  
— 125M.

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State Machinery & Supply Co., West Columbia, S. C.  
Wilson-Weesser-Wilkinson Co., Nashville & Knoxville, Tenn.  
Rish Equipment Co., Charleston & Clarksburg, W. Va.  
Richmond & Roanoke, Va., Bluefield, W. Va., Cincinnati, Ohio  
H. B. Oswley & Son, Charlotte, N. C.  
D. C. Elphinstone, Inc., Baltimore, Md. and Washington, D. C.  
Tag Equipment Co., Inc., Chattanooga, Tenn.  
Ingersoll Corporation, Shreveport, La.

### THE GORMAN-RUPP Guarantee

Our distributor's are authorized to put a Gorman-Rupp Contractor's Pump on any pumping job, anytime, anywhere, alongside any other make pump, size for size. The Gorman-Rupp pump is guaranteed to pump more dirty water, more hours, using less gasoline, to prime quicker and at higher suction lifts than any other self-priming pump. If it isn't the best all around pump, our distributor will accept the return of the Gorman-Rupp pump and pay the user any installation expense incurred.

**THE GORMAN-RUPP COMPANY**  
MANSFIELD, OHIO

## Roadbuilders Back Big Program

(Continued from page 36)

phases of urban development, including highways would make it possible for the cities to spread the heavy cost of improvements over a period of years through stage construction. "Under such a plan," he concluded, "sufficient land in slum areas and blighted sections can be acquired in the initial taking, not only for highways but for general redevelopment of the area," with work starting later as the funds become available.

### The Upham Report

Delivering his annual report, which he had prepared in many past years but lacked the opportunity to present it, Engineer-Director Upham emphasized the fact that "we are losing ground in providing highway facilities. Not since 1930 has the program approached a size that will meet traffic demands," he said, giving the reason as the attempt of leaders in the highway field to return to the economy of prewar times, not taking into account the wartime depreciation of roads, the increase in the number of motor vehicles and the larger population.

The depression of the thirties, and the second world war were followed by an upsurge in vehicle registrations and use which far outdistanced resumption of the interrupted highway program. "These prolonged gaps in the highway construc-

tion program, plus a prewar level of expenditures which were never adequate," he observed, "have resulted in an accumulated deficiency of highway facilities. Obsolescence and depreciation of highways, in face of rising use, are continuous and "to meet this situation the highway program should be continuous."

### Federal Aid Discussed

Representative Will M. Whittington, chairman of the House Public Works Committee delivered what was one of the most exhaustive discussions on the subject of Federal Aid before the annual roadbuilders' banquet. He told of its history since the program started operating in 1921, defended the soundness of the policy and advocated a firm stand against diversion of highway funds both by the states and by Congress.

He predicted the next step in Federal Aid legislation would be to provide a system of two lane highways and for Federal participation to a larger extent for that width road than for single-lane routes. Another move, he said, will be extension of the Federal Aid program to provide for more rural and farm-to-market roads. "The present highway system," he declared, "is inadequate and must be expanded to keep pace with our needs."

Col. John A. Allison, assistant secre-

tary of Commerce for Aeronautics, revealed that requests for airport funds have exceeded the \$103,500,000 by \$200,000,000. Money allocated to 532 airports totals \$65,000,000 with \$35,000,000 tentatively allocated and \$6,500,000 unallocated. Current policy of his department is to stress modernization of air traffic control and to develop a system of airports capable of handling the resulting increase in traffic.

Numerous reports by nationally renowned experts were delivered at the technical sessions on such subjects as asphalt emulsion, calcium chloride, Portland cement and lime soil stabilization, radio communications, highway engineering, express highways, snow removal, highway and airport foundation design, highway terminals, soil compaction, asphaltic concrete resurfacing and widening, pavement foundations, rigid pavements design and construction, concrete curing and military construction equipment.

### Needles Elected President

Attended by more than a thousand officials, engineers, contractors and other experts of the highway world the convention elected Col. E. R. Needles, New York consulting engineer, president for the current year, succeeding J. T. Callaway who had served two terms. Mr. Needles is a member of the firm of Howard, Needles, Tammen and Bergendoff and is widely known as a designer of bridges.



**A HIGH SPEED  
MOBILE  
CONSTRUCTION  
TOOL**

**OR A  
PAVER!**

**TAKE** this MultiFoote Paver with its HighLift Boom out of this picture and run over the methods and equipment you would have to use to accomplish the same thing.

Your MultiFoote, either the Singlemix 34-E Single Drum or the Duomix 34-E Double Drum Paver equipped with the MultiFoote HighLift Boom is a high-speed mobile construction tool. It will travel in under steel or false work. It will place concrete 23 feet up. Its MultiFeed Bucket will deliver either a shovelful, a wheelbarrowful or the whole load and is controlled from the operator's platform.

With the MultiFoote you are equally well equipped to bid on general contracts or road work profitably. Contractors will find that they can, in many cases, eliminate trucks, shooting towers, cranes and other expensive equipment and should give consideration to the MultiFoote and the HighLift Boom on their future jobs. We will be glad to give you details.

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Subsidiary of Blaw-Knox Co.  
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**MULTIFOOTE**  
Duomix 34-E Double Drum • Singlemix 34-E Single Drum



## Regional Vice Presidents

Four regional vice-presidents were elected to succeed themselves. They are: Charles W. Smith, president of Smith Engineering and Construction Co., for the southern district; W. A. Roberts, executive vice-president of Allis-Chalmers Manufacturing Co., for the central district; Paul B. Reinhold, president of Atlas Equipment Co., for the northwestern district, and T. E. Stanton of the California Department of Public Works, for the western district. Jennings Randolph is the new treasurer and was also re-elected president of the A.R.B.A. airport division.

## To Three-Year Terms

Elected to three-year terms on the American Road Builders' Association board of directors were: Paul L. Andrews, executive secretary, Georgia Highway Contractors Association, Atlanta; Robert B. Brooks, consulting engineer, St. Louis, Mo.; Bernard L. Gray, general manager, Asphalt Institute, New York; Robert N. Reindollar, chairman, Maryland State Roads Commission, Baltimore; Paul B. Rynning, Jackson County Highway Engineer, Medford, Ore.; Charles M. Sells, consulting engineer, Albany, N. Y.; and A. R. Taylor, consulting engineer, Koppers Company, Pittsburgh.

Vice-presidents of the airport division who were re-elected were Brig. Gen. T. B. Herndon, chief, Aeronautics Division, Baton Rouge, La., representing Region 4, and O. J. Porter, consulting engineer, Sacramento, Calif., representing Region 6. Newly elected vice-presidents are: Region 1, Maj. Gen. C. R. Moore, Baltimore; Region 2, E. E. Beutley, engineer-manager of Airports, Jacksonville, Fla.; Region 3, Robert E. Dewey, director, Illinois Department of Aeronautics, Springfield; Region 5, J. D. Ramsey, director, Nebraska Aeronautics Commission, Lincoln, Neb.; Region 7, Frank W. Wiley, director, Montana Aeronautics Commission, Helena.

## Airport Directors

The Airport Division's new directors, elected for three-year terms, are as follows: Gen. Donald Connolly, director of aviation, Baltimore; Louis Grashot, director of aviation, Memphis, Tenn.; C. Merrell, member, Aviation Commission, Columbus; Col. Roy D. Burdick, consulting engineer, Little Rock, Ark.; R. F. McKee, planning and research engineer, Air Lines, Denver, Colo.; W. A. Bugge, managing engineer, Asphalt Institute, San Francisco, Calif.; Louis Wasmer, vice-chairman, Washington State Aeronautics Commission, Spokane, Wash. G. D. Albrecht, Memphis Municipal Airport, was elected to a two-year term.

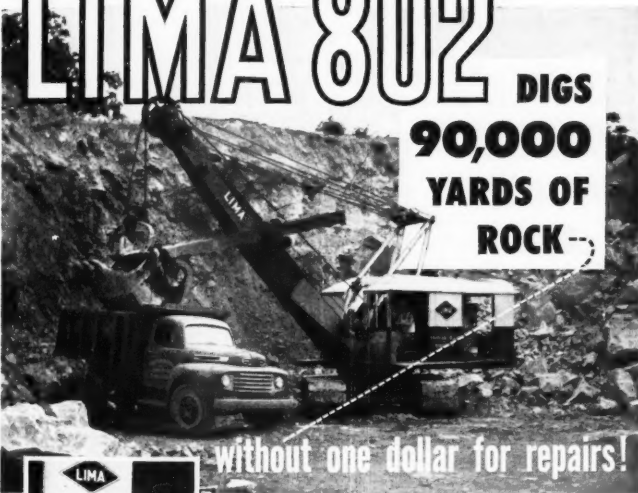
## Teer Heads Contractors

The Contractors' Division elected Nello L. Teer, Jr., president to succeed Donald O. White, of Chicago. Mr. Teer is vice-president of the Nello L. Teer Co. of Durham, N. C. J. D. Bonness, president, Joseph D. Bonness, Inc., Milwaukee, was elected vice-president. Re-elected to the

(Continued on page 68)

# LIMA 802

**DIGS  
90,000  
YARDS OF  
ROCK**



**without one dollar for repairs!**



Bradford Weston and Brad, Jr. standing beside the LIMA shovel.

"No other shovel will outperform our LIMA," says Bradford Weston of Hingham, Mass. "Our 2-yard LIMA Shovel has dug about 90,000 yards of rock in our quarry during the past year, and we haven't spent a dollar for repairs. We call that tops in performance."

Records like this are causing more and more shovel and crane users to switch to LIMA. From crawler to shovel dipper, crane clamshell, or dragline bucket—every LIMA is engineered and built to stay on the job. It will pay you to investigate the many exclusive LIMA features that make these records possible.

The LIMA line includes Shovels 1/4 to 6 yards, Cranes 13 to 110 tons, and Draglines variable.

## LIMA EQUIPMENT SOLD AND SERVICED BY

OUR DALLAS OFFICE: 1304 McKinney Ave., Dallas 2, Texas  
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## Sales Agents:

Albuquerque, N. Mex., Contractors Equipment & Supply Co., Springer Bldg.  
Baltimore 3, Md., Henry H. Meyer Co., Inc., 110 So. Howard St.  
Baton Rouge, La., General Equipment Inc., 435 Richland Ave.  
Birmingham 6, Ala., G. C. Phillips Tractor Co., 4419 First Avenue North  
Clarksburg, W. Va., West Virginia Mine Supply Co., Box 872  
El Paso, Tex., Contractors' Equipment & Supply Co., 1420 Myrtle St.  
Fort Smith, Ark., R. A. Young & Son, Inc., 301 South 10th St.  
Houston 1, Tex., McCall Tractor & Equipment Co., 3714 Navigation Blvd.  
Kansas City 8, Mo., Buchanan Co., 1710 Grand Ave.  
Knoxville 1, Tenn., Martin Machinery & Supply Co., 4100 Chapman Highway  
Louisville 8, Ky., Emmett C. Watson Co., 310 East Brandeis St.  
Nashville, Tenn., Martin Machinery & Supply Co., 830 8th Ave. South  
North Little Rock, Ark., R. A. Young & Son, Inc., 900 West Second Street  
Palatka, Fla., McLean Machinery Co., 220 North Seventh St.  
Roanoke, Va., J. W. Burrell, 1701 Shenandoah Ave., N. W.  
San Antonio 6, Tex., Acme Iron Works, Culebra Ave. at Expressway N. W.  
Savannah, Ga., Morgan's Inc., 111 West Broad Street  
Statesville, N. C., Interstate Equipment Co., West Bldg.  
St. Louis 10, Mo., E. F. Marsh Co., 4030 Chouteau Ave.  
Tulsa, Okla., Buchanan Co., 114 West 3rd Street  
Tyler, Tex., D. M. McClure Equipment Co., Inc., 220 No. Fenton St.  
Waco, Tex., Richards Equipment Co., 910 Franklin Street  
West Columbia, S. C., State Machinery & Supply Co., 1005 Meeting St.

## Lima Shovel and Crane Division

LIMA, OHIO

OTHER DIVISIONS: Lima Locomotive Works Division; Niles Tool Works Co., Hoober, Owens, Rentschler Co.



## Roadbuilders Back Big Program

(Continued from page 63)

board of directors for terms expiring in 1952 were: R. P. Bayard, Contractors' Division of Johnson, Drake & Piper, New York, N. Y.; E. E. Hoebol, Wisconsin Road Builders' Association, Madison; P. F. Hollinger, Hollinger-Davidson Company, Akron; L. W. Lamb, Holland, Mich.; P. J. Walsh, West Virginia Contractors' Association, Charleston; W. V. Williams, Williams Paving Co., Norfolk, Va.; W. A. Young, Cornell-Young Co., Macon, Ga. Newly elected director of the

board for a three-year term was John L. Flanagan, Jr., of the Brooklyn Corp., Baltimore, Md.

Re-elected directors-at-large for one-year terms: Wyatt B. Hodges of R. H. Wright & Son, Fort Lauderdale, Fla.; Rudolph Kraemer of Edward Kraemer & Son, Plain, Wis., and E. D. Sloan, Sloan Construction Co., Greenville, S. C. New directors-at-large for the Contractors Division are: Austin E. Page, Lane Construction Corp., Meriden, Conn.; R. B. Potashnick, Cape Girardeau, Mo.; H. W.

Riebe of Charles Riebe, Lansford, Pa.; and Herbert M. Warren, Warren Brothers Roads Co., Birmingham, Ala.

Alan N. Buck, superintendent of highways for Macon County, Decatur, Ill., was elected president of the County Highway Officials Division, succeeding Ben T. Collier, Clarksdale, Miss.

### County Vice Presidents

Re-elected vice-presidents were: L. P. M. Gaylord, superintendent of highways, Lewis County, Lowville, N. Y., north-western district; A. W. Hinderman, engineer for Louisa County, Wapello, central district; and Chris P. Fauerso, engineer for Wasco County, The Dalles, Ore., western district. Scott Candler, commissioner of DeKalb County, Decatur, Ga., was elected vice-president for the southern district.

Three directors of the board for the County Division were re-elected, with terms expiring in 1952. They include: Otto S. Iless, engineer-manager, Kent County Road Commission, Grand Rapids, Mich.; Earl J. Mattis, superintendent of highways, St. Lawrence County, Massena, N. Y.; and Paul B. Rynning, engineer for Jackson County, Medford, Ore. Newly elected directors for three-year terms are: Walter T. Jacobs, executive secretary, Ohio County Engineers' Association, Columbus, Ohio; A. N. Sollee, engineer for Duval County, Jacksonville, Fla.; E. S. Ward, engineer for Kandiyohi County, Willmar, Minn.; and Wayne S. Talbott, chairman, Board of County Commissioners, Nez Perce County, Lapwai, Ida.

### Municipal Division Head

H. H. Kranz, city engineer, Cincinnati, Ohio, has been elected president of the municipal division to succeed J. B. Wilson of Louisville, Ky. All vice-presidents of the municipal division were re-elected. They are: H. F. Clemmer, engineer of materials, District of Columbia, Washington, D. C., northeastern district; D. L. Erickson, director of parks, Lincoln, Neb., central district; W. E. Sheddard, city engineer, Jacksonville, Fla., southern district; and W. N. Frickstad, superintendent of streets, Oakland, Calif., western district.

Two directors of the board, with terms expiring in 1952, were re-elected. They are: Robert A. Mitchell, chief, Bureau of Traffic Engineering, Philadelphia, Pa., and Ralph B. Slippy, president of Ralph B. Slippy Engineering Corp., Waterloo, Ia. Newly elected directors for three-year terms are: W. W. DeBerard, city engineer, Chicago, Ill.; W. L. Chilcote, deputy highways engineer, Department of Public Works, Baltimore; Ralph G. Wadsworth, city engineer, San Francisco, Calif.; R. W. Thompson, director of public works, Hartford, Conn.; Raleigh W. Gamble, superintendent of street construction and repair, Milwaukee, Wis.

### Manufacturers Division

The Manufacturer's Division elected R. K. Stiles, executive vice-president, Austin-Western Co., Aurora, Ill., to succeed W. B. Greene, president of Barber-

(Continued on page 66)

**LOW IN COST...**

**HIGH IN PERFORMANCE**



**THE  
OSGOOD  
MODEL 50  
3/8 YARD  
SHOVEL**

A rugged, versatile, and dependable performer at low cost—that's the OSGOOD Model 50. Its simplicity of operation, easy maneuverability, and full convertibility to all attachments provide outstanding performance in the construc-

tion, road building, pit and quarry and industrial fields.

Available as shovel, crane, hoe, dragline, and clamshell. Equipped with OSGOOD patented wire rope crowd and automatic retract.

Write for complete details.

POWER SHOVELS • CRANES • DRAGLINES • CLAMSHELLS • BACKHOES • PILE DRIVERS

**THE OSGOOD CO. THE GENERAL CO.**  
MARION OHIO  
DIESEL, GASOLINE OR ELECTRIC POWERED • 3/4 TC 2 1/2 CU. YD. • CRAWLERS & MOBILCRANES



# The O.K. PORTABLE ELEVATOR

*Eliminates Costly  
Wood Towers!*



Guaranteed performance up to 100'—that's the story behind the success of this portable elevator. Ten foot sections are easily added. 15 or 25 H.P. Hoist gives you lifting capacity of 1600 or 2400 lb. capacity. Platform travels clear of guides. 200 ft. per min. hoisting speed.

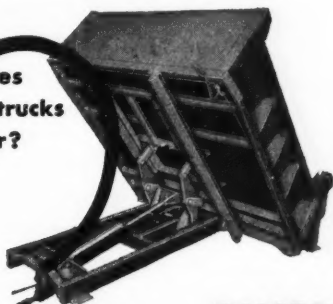
Steel base section, electric welded and structural steel members—give maximum efficient operation. Time and labor saver extraordinary.

**NEW OPTIONAL EQUIPMENT.** All-steel dumping bucket with roller attachment for dumping at any desired height.

Write for free bulletin, or name of nearest dealer.

**O.K.** CLUTCH & MACHINERY CO.  
1942 FLORENCE ST.  
COLUMBIA, PA.

what makes  
some dump trucks  
last longer?

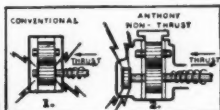
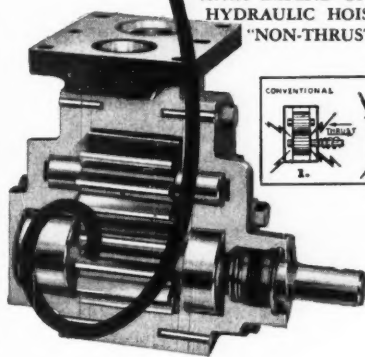


## The Roller Bearing PUMP with the NON-THRUST feature

**ADDS UP TO 700% TO THE LIFE  
OF ANTHONY DUMP TRUCKS**

THE HEART of a dump truck—the pump—plays as important a part in the operation of a dump truck as your heart does to you. And when the pump fails, the hoist fails and the truck stops working. That is why Anthony engineers place such emphasis on the pump. The amazing patented "NON-THRUST" design of the Anthony roller-bearing pump is found in no other hoist at any price. Unlike conventional pumps, its design eliminates the No. 1 cause of pump failure—destructive mechanical thrust on the gears. (See drawings below.)

Large roller bearings, extra thick reversible bronze wear plates, pressure lubricated idler gear bearings and precision finished steel gears are other features that give this pump an unequalled field performance record. For dependable service **DEPEND ON ANTHONY HYDRAULIC HOISTS** with the "NON-THRUST" Pump.



**ANTHONY**  
HYDRAULIC

**ANTHONY  
COMPANY**  
Streator, Illinois



## Road Builders Back Big Program

(Continued from page 64)

Greene, Aurora, Ill., as the president.

Other newly elected officers were Howard W. Richardson, of New York, vice-president; W. E. Miles, general manager, Oliver Corp., Cleveland, Ohio, 2nd vice-president; E. F. Armington, vice-president in charge of sales, Euclid Road Machinery Co., Cleveland, Ohio, secretary-treasurer.

Those elected to the board of directors were: G. H. Olsen, Link-Belt Speeder Corp., Cedar Rapids, Iowa; Ray McLean, vice-president, Jaeger Machine Co., Co-

lumbus, Ohio; Carlton E. Dodge, Northwest Engineering Co., Chicago, Ill.; Henry Isaacson, Isaacson Iron Works; W. E. Miles, general manager, Oliver Corp., Cleveland, Ohio; J. T. Callaway, Goodyear Tire & Rubber Co., Chicago, Ill.; and Harold W. Richardson, New York.

### Many Papers Presented

Among the papers presented at the forty-sixth annual A.R.B.A. meeting were:

*George Dent*—Specifications for Soil-Asphalt Stabilization.

*Joseph Barnett*—Control of Access in Urban Areas.

*Alvin B. Backherms*—Research in Connection with Design and Development of Street Sewer Inlets.

*B. Everett Beavin*—Supercompacting Subgrades and Pavement Foundations at Friendship International Airport.

*Frank Bonery, H. C. Vollmer*—Curing of Concrete.

*J. S. Bright*—Reducing Maintenance Costs on County and Local Roads.

*Charles E. Brokaw*—New Materials and Procedures Used in Pavement Maintenance.

*Robert N. Cook*—Status of the Federal Aid Airport Program.

*Dr. Robert Eaves*—School Bus Transportation and Better Roads.

*Dr. Bruce D. Greenshields*—An Appraisal of Engineering Education.

*Hubert H. Humphrey*—Urban Highway and Street Financing.

*Walter Johnson*—State and County Relations.

*Willard Manning*—Rural Carriers Look to the County Engineer for Better Roads.

*P. E. Masheter and H. E. Marshall*—Foundations for Pavements.

*Warren K. Myers*—Soil Cement Stabilization.

*A. C. Leonard*—Status of the Federal Aid Secondary Program.

*Ben H. Petty*—Need for Improvement in County Highway Administration.

*William J. Powell*—Snow Removal.

*I. B. Rutledge*—State and County Relations in Administration of Local Roads.

*George B. Schoolcraft*—Military Construction Equipment.

*Almeron W. Stillwell*—Mill Creek Barrier Dam.

*S. P. Tauber*—Effect of Jet Fuel on Joint Sealing Materials.

*Carl H. Walther*—Is Our Engineering Education Too Materialistic?

*Edward A. Willis*—Essentials of Base Stabilization.

Dickey is the preferred pipe for sanitary sewers because:

1. It is made of tested raw clays. Dickey Pipe is completely proof against the results of sewer gas, industrial chemicals, and abrasives.
2. Dickey Pipe is manufactured in all standard sizes up to 36-inch diameter. This includes special fittings.
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## W. S. DICKEY CLAY MFG. CO.

Kansas City 6, Mo., Birmingham 1, Ala., Chattanooga 2, Tenn.  
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IF IT'S MADE OF CLAY IT'S GOOD... IF IT'S MADE BY DICKEY IT'S BETTER

### Fog Disposal System

The first unit of the new and improved commercial installation of the \$842,000 Todd Thermal Fog Disposal System was tested at the Los Angeles Airport last month. The system is the first commercial installation in the world and was developed by Todd Shipyard Corp. The city combined with the CAA to finance its construction under the Federal Airport Act.

The installation is designed to produce ceiling heights as follows: 400 to 500 feet in the 2,000-foot approach zone; 250 feet in the 1,000-foot "Touchdown" zone; 200 feet to 50 feet in the 3,000-foot of remaining runway.

There are 392 "triads" on frames erected 14 inches above the ground which parallel both sides of the main east-west Los Angeles Airport runway and approach zone for 6,000 feet. Every triad has three Todd jet-atomizer nozzles that control the combustion of cheap diesel fuel under pressure of not less than 1,000 pounds per square inch. The triads are connected with underground pipes that lead to two oil storage tanks, situated in a remote area, holding 129,276 gallons of fuel each or a total of 258,552 gallons.

### J. M. Insulation Data

"Rock Cork Felt Sided Roof Insulation" is now ready for distribution by Johns-Manville, 22 East 40th Street, New York 18. Photographs show this Johns-Manville insulation being applied and illustrate its advantages. The text contains conductivity data and similar information of interest to roofing contractors and building maintenance men.

# A Thor BREAKER FOR EVERY JOB!

EACH THE MOST POWERFUL IN ITS CLASS!

32 LB.

Model No. 17—Length, 22". For breaking up concrete floors, tearing down brick or concrete walls, ripping out building timbers, and other general demolition. Easy to handle from scaffolding and in close quarters.



No. 17

59 LB.

Model No. 23—Length, 25 1/4". A medium weight breaker in wide use for cutting wall, floor and street openings, and spike driving, where a hard-hitting, easily held machine is preferred.



No. 23

70 LB.

Model No. 24—Length, 28". Thor's great new breaker in the heavy duty class at a weight under standard heavy duty tools. Powerful hitting, it's easier-to-handle weight makes it the speed king in its class.



No. 24

84 LB.

Model No. 25—Length, 24 1/2". Easily the most powerful and most widely used heavy duty breaker in the field—extremely powerful for all types of heaviest demolition work and spike driving.



No. 25

## SHEETING DRIVER

Model No. 25S—Length, 29 1/2". The powerful, heavy duty model 25 breaker fitted with attachment for driving steel or wood sheeting up to three inches thick.



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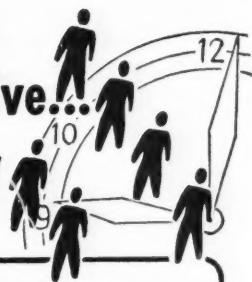
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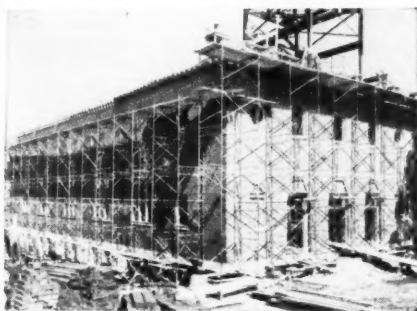
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## Heyburn Dam One-Third Finished

(Continued from page 43)

### Excavation and Foundation Preparation

The embankment fill began in an area which was the site of an old slough. An effort was made to excavate all unsuitable material in the foundation since the greater part of it consisted of loose overburden and soft, silty quicksand, closely overlying water. It was found impossible to excavate all of this material, as it overlay bedrock with an approximate thickness of 40 feet. A firm embankment foundation naturally was essential, so a change in operations and treatment was required. Shale from the required excavation of the outlet works, located at the

right abutment of the dam, was placed at the beginning of the soft area and dozed forward, pushing the soft material ahead.

This operation proved successful in that the shale being partially mixed with the soft, sandy silt was forced down approximately four feet to form a firm foundation. The moisture contained in the soft material was enough to break the shale down to a solid impervious mass. Semipervious material from the required excavation of the outlet and diversion channels and borrow areas was then placed in six-inch layers over the shale and compacted by eight passes of a sheep's-foot roller.

### Outlet Works Excavation

Excavation of the outlet works, outlet and diversion channels was carried on simultaneously with construction of the embankment. Five 12-cubic yard Tournapulls and two 12-cubic yard scrapers were the principal pieces of excavation equipment in use. Approximately ten feet of overburden was excavated from the outlet works with very little difficulty.

Underlying the overburden was a shale formation which varied from weathered, soft to very firm, compact unweathered dark grey. This material was not so difficult to excavate as was anticipated and a maximum rate of 60 cubic yards per hour with a 3,000-foot round-trip haul was reached with each Tournapull. Although a roofer was used to loosen the material in the section where the firm, dark grey shale was encountered, it became necessary to use a more concentrated operation than that being done with the Tournapulls and scrapers.

### Scrapers Found Efficient

Excavation of the intake portion of the outlet works foundation was performed by a power shovel loading into dump trucks. As the shale became harder, this operation gave way to systematic drilling and blasting with the blasted material being removed either with the power shovel or the crane with a clamshell bucket. The shale uncovered in the stilling basin portion of the outlet works soon gave way to a very firm formation of sandstone. The power shovel operated to its limit in excavating this part of the foundation but the final rock excavation was performed by very extensive drilling and blasting with the rock being stockpiled for future use in the rock fill.

It was observed that the scrapers operated more efficiently than the Tournapulls in the main outlet works excavation, and, in connection with this observation, a push tractor was used as an aid to loading. However, a rate of 100 cubic yards per hour for each Tournapull was reached in excavating the outlet channel, this being based on a 3,000-foot round-trip haul.

### Pull-Push Tractors Aid Work

As soon as the water table was reached in this phase of the excavation, a pull tractor, as well as a push tractor, was used as an aid in loading the equipment. It was soon apparent that the final excavation to neat line would have to be performed by dragline. This was accomplished with one Northwest S-D crane with three-cubic-yard dragline bucket and five ten-cubic-yard Caterpillar DW-10 hauling units. The material in the diversion and outlet channels, being of a semipervious classification, was placed and compacted in the upstream and downstream fills of the embankment section.

### Careful Materials Selection

A careful selection of materials has been necessary in order to insure an impervious core and a semipervious body of the dam. The two classes of materials are determined by grain size analysis

(Continued on page 70)

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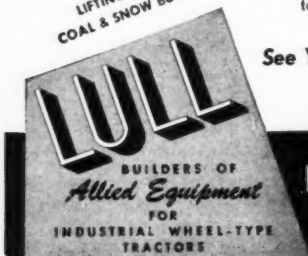
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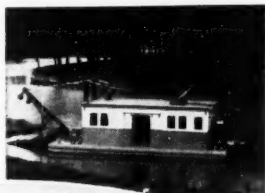
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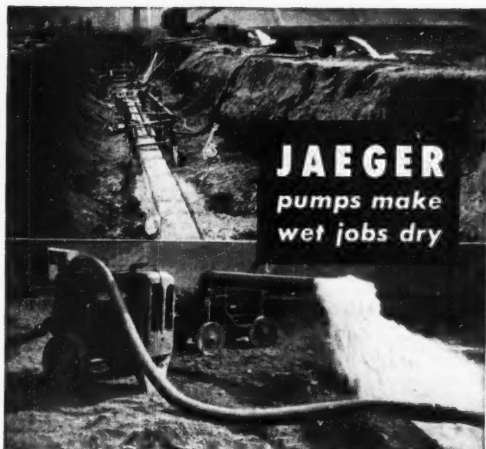
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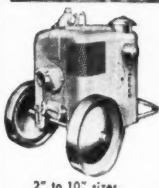
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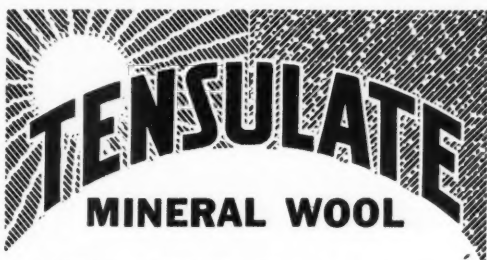
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## Heyburn Dam One-Third Finished

(Continued from page 68)

with 40 per cent or less retained on a No. 200 mesh sieve being classified as impervious and more than 40 per cent being classified as semipervious. A tolerance of five per cent each way is permissible.

Much of the material excavated from the outlet works excavation was borderline material, although it was generally classified as being semipervious. It was necessary in the beginning to procure the bulk of the impervious material from an upstream borrow pit. It was observed, however, that the pit contained an almost equal amount of semipervious material which could be used in the upstream and downstream fills. Since the required excavation of the emergency spillway contained a great amount of material classified as being impervious, it was deemed necessary to use the bulk of this material in the impervious core, with the least desirable quantities of it going into the upstream random blanket.

### Overburden Stripping

Stripping of the overburden in the emergency spillway was performed by dozers and scrapers. Excavation of the weathered shale underlying the overburden was accomplished by the use of the Tournapulls. This equipment soon reached its limit as the firm shale and rock began to show, so systematic drilling

and blasting were used to loosen the material. The Tournapulls and scrapers, mentioned in preceding paragraphs, operated very efficiently in the upstream borrow pit, using a push tractor as an aid in loading.

### Upstream Borrow Pit

Another upstream borrow pit, located north of the right abutment in a pocket formed by a minor stream joining the mainstream, was designated as the primary source of semipervious material. A considerable amount of clearing was necessary in this area due to the thick growth of large trees and dense underbrush. The clearing was accomplished by the use of bulldozers, push tractors and hand tools. Preliminary stripping of the pit was carried out by the use of the aforementioned Tournapulls and scrapers, which in turn had to give way to the DW-10 hauling units and the S-D crane with dragline bucket because of the sandy nature of the material and seepage of ground water.

It is anticipated that the semipervious material contained in the two upstream borrow pits will be sufficient to complete the main section of the embankment before closure in July and August of 1949. Material to be used in the semipervious body of the closure section will be procured from a borrow pit located down-

stream from the embankment with core material being obtained from the emergency spillway excavation and, if possible, from certain sections of the main upstream pit.

### Concrete Placement

The final required excavation in the outlet works, prior to the placement of concrete, was performed with hand shovels, picks and air spades. As the firm, dark grey shale encountered in the site of the outlet works weathers very readily upon being exposed to the air, it was necessary to treat the surface of all shale areas opened and subject to weathering to prevent rapid deterioration. The treatment consisted of placing a six-inch lift of concrete on the dry, clean shale surface, sealing any fractures, cavities or porous pockets in the shale formations and forming a firm and stable foundation.

Since the additional concrete contained in the monoliths to be placed on this protective coating required no bonding to the surface, a surface membrane type curing compound was used. The compound was sprayed on the surface immediately following the final screeding. Concrete surfaces to which the curing membrane was applied were protected from all traffic for the specified curing period.

### Form Fabrication

All forms are fabricated on the job site in advance of the time scheduled for their use and are constructed from one-

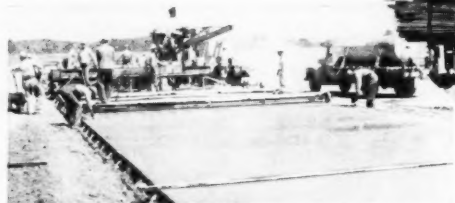
(Continued on page 72)

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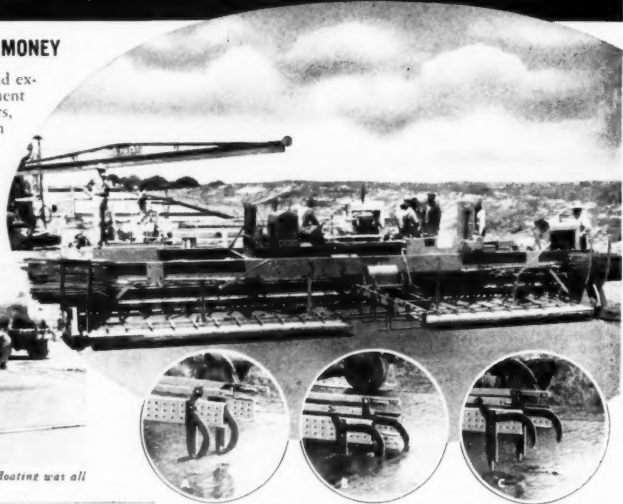
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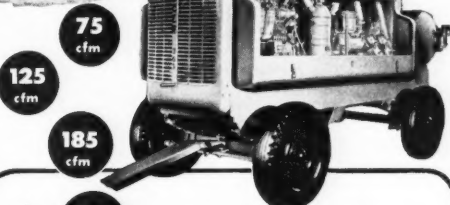
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MARCH, 1949



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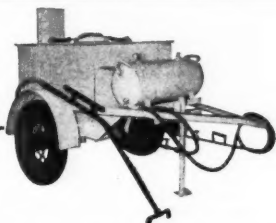
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## Heyburn Dam One-Third Finished

(Continued from page 70)

inch-thick tongue and groove material of uniform width with studs and wales consisting of 2- by 6-inch material. Where forms are placed for exposed surfaces, except those lined with absorptive form lining, they are coated with nonstaining mineral oil, applied shortly before the concrete is placed.

Absorptive form lining is used on forms where the concrete surface will be exposed. In order to prevent wrinkling of the lining, which occurs during damp atmospheric conditions, the 4- by 6-foot sheets of lining are stapled to the forms

only a short time in advance of the actual concrete placement. It has been found that the application of heat to the forms by the use of salamanders a few hours before placing concrete will reduce the bulges and wrinkles in the form liner to a minimum.

### Type 2 Cement Used

The cement used in concrete on this project is of Type II, high heat of hydration. The sacked cement is transported by railroad cars to a siding at Kellyville, Okla., approximately seven miles from the job site, and from there it is unloaded

and transported by truck to a storage shed located at the contractor's plant on the project.

Coarse aggregate consists of crushed limestone produced by the Carthage Marble Co., located at Carthage, Mo. The aggregate is supplied in two size groups with one group ranging from No. 4 to 3/4-inch and the other group ranging from 3/4-inch to 1 1/2 inches. Fine aggregate is being obtained from two sources. Washed river sand from the Arkansas River Sand Co., located at Sand Springs, Okla., and blow sand from the C. L. Stewart Co., Jenks, Okla.

### Air Entraining Agent

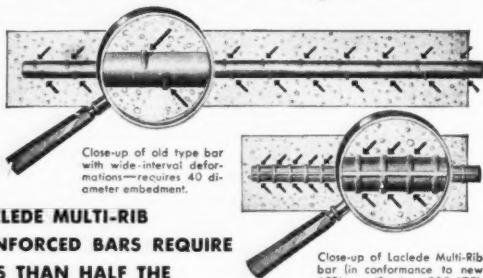
One type of air-entraining agent is used in all concrete, "Darex," manufactured by the Dewey and Almy Chemical Co., Cambridge, Mass., is being successfully used on this project. Increased workability and lower water demand are some of the beneficial results obtained by the use of such air-entraining admixtures.

Concrete mixing water is taken directly from Polecat Creek. If necessary, the water is heated as required to maintain a concrete temperature of 40 to 85 degrees Fahrenheit at time of placement.

The contractor's batch plant consists of two batching hoppers, one for coarse aggregate and one for fine aggregate, and a cement storage shed all located on the right abutment overlooking the outlet works. The mixing plant consists of one 27E Foote and one 27E Koehring paver. A 1 1/4-yd. Northwest crane with a 60-foot boom is used to handle a one-cubic-yard bucket for placement of the concrete.

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### Steel Bookings Drop

Estimated total bookings of fabricated structural steel for January were off 125,834 tons, according to the American Institute of Steel Construction. This compares with 169,553 tons in December and 160,634 tons in January of 1948.

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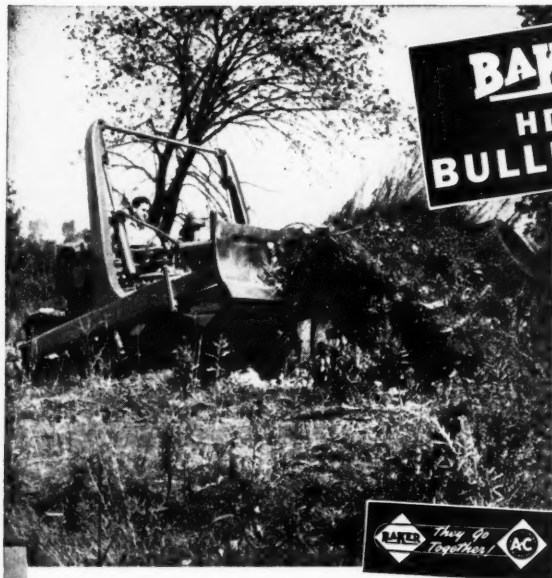
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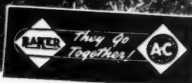
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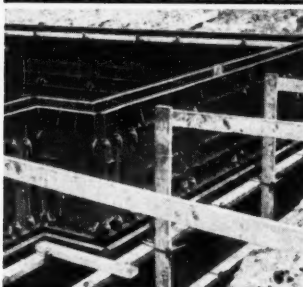
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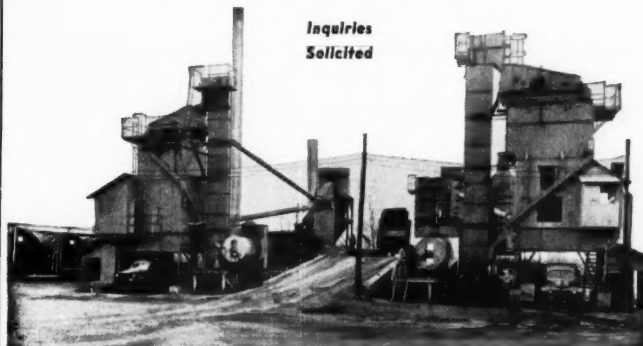
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Both plants equipped with Cumber two-fire Combination Dryers and Dust Collection equipment.

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## Carolina Road Builders Hold Meet

(Continued from page 37)

of utilization of separate contract for major items of construction limited to excavation, paving and structures. He told the contractors that the State's desire was for more specialization in projects let to contractors since then better results were obtained.

Withholding percentage of current and final estimates was discussed by C. R. McMillan, chief highway engineer of South Carolina Highway Department.

B. P. McWhorter, serving as moderator for the panel on design of construction equipment to meet the needs of an ever expanding secondary farm-to-market highway construction and betterment program in North and South Carolina, told the group that heretofore greater emphasis has been placed by the manufacturer on the concentration of larger types of road building equipment which may be attributed to the lack of demand for sizes and types necessary on the secondary projects.

Representing the contractors of the C.R.B.A., N. K. Dickerson, Jr., discussed the type of equipment that contractors are now demanding and pointed out that the reason perhaps that some contractors bid higher on secondary projects is be-

cause they have equipment suitable only for heavy construction work.

During the panel Sterry Mahaffey asserted that it would be helpful to the contractors if the State Highway Departments would disclose the character of the work they plan for award so the contractors, as well as equipment manufacturers, might prepare for the type of operations required.

Capus Waynick, chairman of the North Carolina State Democratic Committee and campaign manager in the election of Governor Scott told the group that the road is the symbol of economic and political power and that North Carolina dare not neglect the skeleton of the great road system.

He continued, "the problem of you road builders is how you can best use your resources to improve the road system, since it is you who have the 'know-how' of road building."

Commending the Carolina Road Builders' Association for the great part it has had in helping furnish Governor Scott with the "know-how" of road building, Mr. Waynick told the group that there are more farms in North Carolina than any other state excepting Texas, and that all should be more concerned about the

industrial power of these acres. "The farm-to-market road in North Carolina is sad, economically," he said.

He especially commended Charlie Ross, former general counsel for the North Carolina Highway Department and now general counsel for the C.R.B.A., for his aid in furnishing Governor Scott with "valuable information in tabulations and records of the thinking of those who build the roads."

Mr. Waynick urged the contractors present to keep in mind that since roads are and always have been so important, road builders need remember their duty to the public to help furnish the badly needed secondary roads.

Cedric Foster, noted news analyst, spoke in dramatic style at the public relations dinner, saying if we do not use unity in the post-war world we will not survive. "In order to obtain unity," he said, "we must—all of us—sacrifice."

He pointed out that Communism can be stamped out only by the church; therefore, the Communists are digging at the very roots of the church, trying to destroy it. "Those of you who with a feeling of security, say Communism is only in the minority," he said, "must remember there has never been a case in history where the majority has overthrown the government... it has always been the minority."

At the final banquet Charles P. Ballenger, toastmaster, presented the golf trophy to Reuben Arthur, of the Superior Stone Co., winner of the golf tournament. The ladies attending also aided with

(Continued on page 76)

## ASPHALT COSTS MONEY

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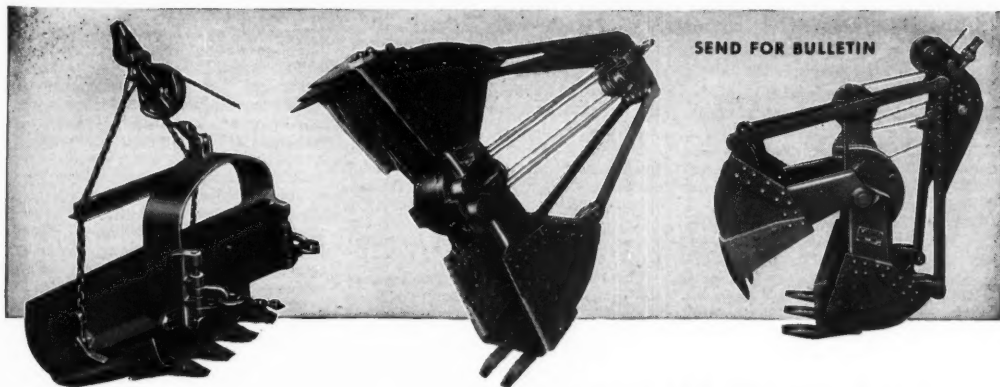
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## Oak Ridge Construction to Soar

(Continued from page 31)

Fourteen-mile, chain-link fence by the Midwest Enterprises, Inc., of St. Louis, at \$101,827.

Additional classrooms for the Elm Grove and Pine Valley elementary schools by the Joe Cameron Construction Co., of Knoxville, at \$148,819.

New fire alarm system for the community by the Tennessee Armature and Electric Co., of Knoxville, at \$289,396.

Sprinkler system by Walton-Viking Co., of Kansas City, and Grinnell Company, Inc., of Atlanta, at \$216,398 and \$169,251 respectively.

Ventilation of commercial buildings by Rentenbach Engineering Co., of Knoxville, at \$127,774.

Improvements in and around the main administration building by Roane-Anderson Co., of Oak Ridge at \$138,167.

Turner Construction Co., of New York, continues operation and maintenance of the Town of Oak Ridge under a contract extending to December 31, 1960, through its subsidiary Roane-Anderson Co., which derives its name from the two counties in which Oak Ridge is located. LeRoy C. Macneal is project manager.

Covered under the Roane-Anderson activities are operation and maintenance of all public buildings, roads, streets and public grounds; the electric, water, sewage and steam distribution systems, and purchasing, warehousing and distribution of materials and supplies for what

has been described as the largest of all government owned cities and probably the largest management operation in the United States.

Through 160 concession agreements and 10 subcontractors, the Roane-Anderson organization operates, maintains and manages 9,000 dwellings, dormitories, hotels and all types of commercial services from ice delivery to department stores and supermarkets. Coal and fuel oil supply and distribution and such miscellaneous services as building, cleaning and window washing are under the company's supervision, as well as the motor pool and vehicle repair shops.

Mr. Macneal is a native of Baltimore, where he graduated from the local city college and later took special courses in concrete engineering at Johns Hopkins University, in construction supervision at Columbia University and in mechanical engineering at the City College of New York. He worked for Consolidated Engineering Co., of Baltimore, engaged in a construction enterprise and acted as superintendent for contractors and architects before joining the Turner concern.

### Carolina Road Builders

(Continued from page 74)

the success of the convention, contributing entertainment for the final program in the form of their contest entries stating in 25 words or less why they liked the moon over the ocean.

Answers ranged from, "I like the moon over the ocean because it would look darn silly sitting on the beach," to "... give me the moon and a man six feet tall, not too fat ... but moon by night or sun by day ... I'll take the man anyway."

The prize-winning entry, judged by an applause meter, was Mrs. Reuben Arthur's: "I like the moon over the ocean because it changes my husband from a rock crusher to a bone crusher."

### Rex Southern Offices

Chain Belt Co., of Milwaukee, announces the opening of new district sales offices at St. Louis, Mo., and Jacksonville, Fla. The new St. Louis office is located at 8001 Clayton Road, and is under the direction of Clarence R. Stuber, district sales engineer. The new Jacksonville office is located at 340 W. Church Street, and is under the direction of David B. Hill.

### Tilt Arbor Circular Saw

Delta Manufacturing Division, Rockwell Manufacturing Co., Milwaukee, announces a new floor model 8-inch tilting arbor circular saw. The new model features compactness, with the motor enclosed within the cabinet and with all working parts suspended from the table and likewise enclosed within the cabinet. The machine has a table 25 inches deep and 33 inches wide, heavily ribbed for maximum rigidity.

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OF LYNCHBURG, VA.



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### VIRGINIA ENGINEERING COMPANY, INC.

Government — INDUSTRIAL — Municipal

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NEWPORT NEWS, VIRGINIA

## Wolf Creek Dam

(Continued from page 32)

proper location. Two 8-yard Insley air operated gravity dump buckets are utilized in transporting the concrete via the cableway.

Blaw-Knox type steel forms faced with wood sheathing are used to give an excellent appearance to the exterior surfaces of the concrete. Chicago Pneumatic No. 519 electric vibrators are also used on this job to obtain a dense homogeneous mass.

### Earth Embankment

Two excellent borrow pits with less than a mile haul contained a majority of fill material. Excavation from these borrow pits is accomplished by a Euclid loader powered by a D-8 caterpillar tractor. This equipment averages loading approximately 850 cubic yards of material per hour into a constantly moving line of 15 bottom dump 13-yard Euclid wagons. In addition, three Super C Tournapulls and three D-31 LeTourneau Carryalls average better than four trips per hour. As the material is placed on the fill it is compacted by six McCoy sheepsfoot rollers drawn by two Caterpillar D-8 dozers, making six passes for every six inch layer of material. An International powered Bucyrus-Erie TD-18 cable grader is used on the fill as auxiliary equipment.

### United Nation's Site Excavated

Excavation at the site of the permanent headquarters of the United Nations, in Manhattan, New York, was finished a month ahead of schedule. More than 215,000 cubic yards of earth and rock were dug by Fuller-Turner-Walsh-Slaterry, Inc.

### FOR SALE

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